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THE UNIVERSITY OF ALBERTA

A CONTRASTIVE ANALYSIS OF THE
ENGLISH AND RUSSIAN NOUN PHRASES

by



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A THESIS

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The undersigned certify that they have read, and
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An Abstract of
A CONTRASTIVE ANALYSIS OF THE ENGLISH AND RUSSIAN
NOUN PHRASES

The major part of the present thesis describes the syntactic organization of the English and Russian noun phrases. The remaining section is devoted to indicating the noteworthy issues of contrast between the two given grammars. In the actual analysis of the noun phrase, both languages are submitted to the same model of generative grammar; that is the distinctive syntactic feature model. As a result of the analysis, the rules of the two grammars will present the distinct syntactic differences between the English and Russian noun phrases. At the same time, the rules will conclusively reveal that both systems are structurally quite similar.

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CHAPTER I

THE PROBLEM

1.0 The aim of this thesis is to present a partial grammar of both the English and Russian Noun Phrases (NP's). Since the scope of the grammars is limited to a particular given category, the remaining portion of a tentatively complete grammar need only be kept in mind (e.g. the feature rules of such categories as V, Prep, etc., and the relative ordering of transformations). The branching rules will generate for the most part all necessary categories. However, the feature rules, the lexical entries and the transformations will pertain to the NP. The assumption will be that the remaining categories have been developed concurrently. It should furthermore be apparent that for reasons of space and numerous unresolved problems¹ the treatment of the NP is necessarily incomplete. Nevertheless the analysis presented should provide some insight into the generation of English and Russian NP's and offer readied material for more comprehensive grammars.

In addition to a formulation of partial grammars, it is hoped that the analyses will present interesting information in drawing contrastive conclusions. Since both languages share a common Indo-European origin, the application of the same methodology in both analyses will

¹Examples of such are certain types of determiners used with proper nouns, and formulation of the comparative and superlative transformations.

undoubtedly produce apparent similarities and dissimilarities in the deep structures.

Hence, the thesis at hand shall attempt to fulfil two objectives: to present a short grammar of the English and Russian NP, and to offer a contrast of both analyses.

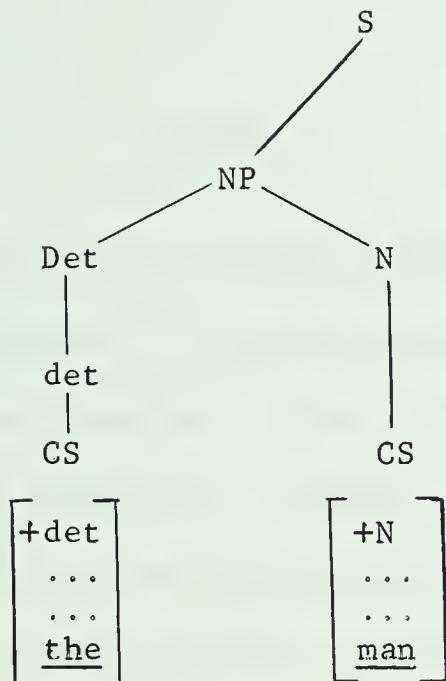
1.1 Before proceeding to the analysis of the NP, a definition is in order. For a clear understanding of the notion NP one must look to its categorical identity. Such an understanding requires an explanation of the hierarchy of categories. The categories concerned are: terminal, major, and least major categories.

Terminal categories consist of a set of two categories. The first is the lexical category which contains a lexical entry (such as man, run, the, etc.). The second is the grammatical category which serves as a marker of a notional concept (such as Tn, Aspect, etc.).² In formal terms,

"X is a terminal category if there is a base rule of the form X → CS, and if there are lexical entries containing the feature [+X]" (Prideaux, 1967:26).

A major category is one which dominates a string leading to a terminal category. The only difference between the major and least major category is that the latter immediately dominates a terminal category.

²Chomsky uses the term formative which subdivides into lexical categories and grammatical categories (1965:65).



The above Phrase-marker (P-marker) will illustrate the given definitions. N and det are terminal categories, both being at the same time lexical categories. Det and NP immediately dominate the terminal categories; and are thus least major categories. And finally, S, NP, and Det are major categories ultimately leading to the terminal categories.³

By virtue of categorical identity, the NP is that particular major and least major category which dominates the terminal categories of det, N, etc. The following analyses shall investigate the terminal categories dominated by NP.

³It is evident that all least major categories are also major categories, but not vice versa.

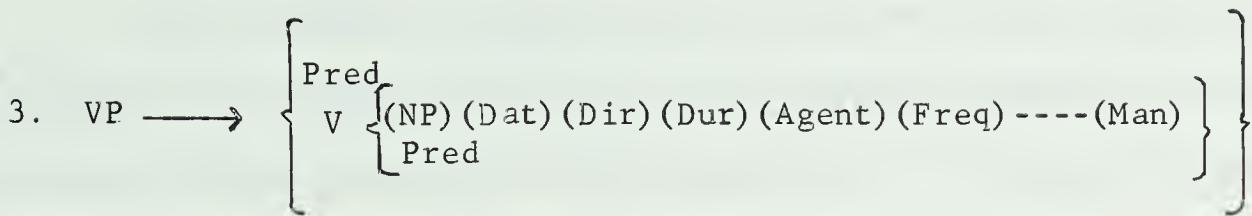
CHAPTER II

THE ANALYSIS OF THE ENGLISH NOUN PHRASE

2.0 The base component of a generative grammar has two general divisions according to function. A set of "rewrite" rules called branching rules serves as a categorial component by defining a system of grammatical relations and also by aligning categories into deep structures. The remainder of the base component is concerned with lexical categories. Serving this function are: the subcategorization rules, the selectional rules, and the lexicon. Each of these will be discussed individually as they pertain to the analysis of the English NP.

2.1 The first ten base rules are branching rules. Rules of this type assume the form $X \longrightarrow Y$ where the arrow \longrightarrow means "rewrites as." In formulating these rules certain formal restrictions, which will not be discussed here, must be imposed (cf. Bach, 1964:35). Due to the fact that a number of these branching rules are generally understood, discussion will be directed only to those rules which are somewhat different in approach.

Rule (3) represents a more recent idea concerning the treatment of the copula be. Earlier grammars have relied on the rule $VP \longrightarrow \underline{be} \overset{\wedge}{Pred}$. However, in this analysis be shall be omitted in the deep structure of predicative sentences.



Lyons supplies adequate reason for such a formulation.

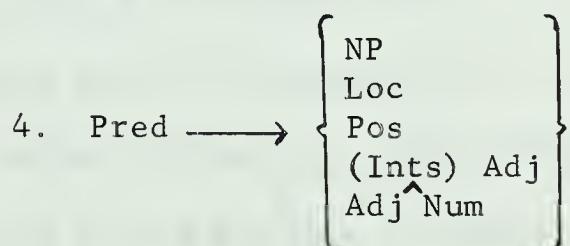
. . . there appears to be no reason to regard S (the "copula") as a lexical class in English (or in the Indo-European languages generally) . . . the "verb to be" . . . may be regarded as a "dummy carrier" of tense, mood, aspect and number in "surface" structure . . . The advantage of this analysis from a syntactic point of view is that embedding transformations no longer need to delete the element be . . . since be can be introduced, where necessary, by the transformational rules . . . (1966:219)

The optional categories NP, Dat ---Man will be considered as nominal elements which are relevant to the selectional specification of verbs (in this case transitive and intransitive verbs). No attempt will be made in this analysis to formulate these restrictions. Similarly, the choice V Pred designates a copulative verb. It too will have selectional restrictions in order to produce such strings as:

The man feels sick.

Bill became an engineer.

*He seems a man.¹



¹It should be noted that these strings are surface structures. Also the phonological realization of the lexical items is assumed by the use of morphographemics.

The expansion of Pred allows two deviant strings $\underline{V}^{\wedge} \underline{Pos}$ and $\underline{V}^{\wedge} \underline{Adj}^{\wedge} \underline{Num}$.² No problem arises here since contextual features will disallow any lexical insertion in the frame [+V]. All lexical entries capable of entering this frame will be negatively specified [-Pos]. Negative specification will be discussed in 2.4.

A choice of the string $\underline{Ints}^{\wedge} \underline{Adj}$ will be sufficiently adequate for the present grammar. The lexical category Ints (intensifier) represents adverbs of degree such as very, quite, rather, etc. These may optionally precede a particular class of adjectives. Such a string will generate the following:

The man seems very happy.

The boy is quite curious.

And yet, it seems that a generality remains uncaptured. The following examples illustrate that further investigation is necessary.³

The man seems very very happy.

*A boy is quite very happy.

When cardinal and ordinal numerals occur, it seems that they carry with them a conceptual notion of number or rank respectively. These notions will be represented by the major category Num which will dominate lexical categories. Thus numeral adjectives will always appear in the string $\underline{Adj}^{\wedge} \underline{Num}$. Examples of these strings are:

The men are fifteen in number.

The horse is fifth in rank.

²Pos and Num represent notions of possession and number respectively.

³As will be seen in the discussion of Rule (5), adverbs might very well be derived from nominal elements in prepositional phrases. Such might be the case with adverbs of degree (Ints).

Certain restrictions can easily be improvised so that the proper numeral will be inserted into the proper context (number or rank).

Later deletions may remove Num from certain structural descriptions.

The horse is fifth.

*The men are fifteen.

Rule (5) is an expansion similar in form to that found in Fillmore's Proposal (1966).

5. $X \longrightarrow \overset{\wedge}{\text{Prep}} \text{NP}$ where $X = \begin{cases} \text{Loc, Tm, Dat, Dir, Dur, Agent,} \\ \text{Freq, Man, Pos, Num.----} \end{cases}$

The categories of X represent relational concepts in the grammar. An interesting possibility lies in the fact that the nominal elements, upon the presence of proper specification, could become pronominalized forms (adverbs) so that

in the room ----→ ⁴ there

towards some house ----→ somewhere

on the next day ----→ then

Contextual features would govern the lexical insertion of the preposition. For instance, when the node Pos is present, the only possible preposition which could fill the frame [+Prep] would be of which would bear the specification of [+Pos].

The last three branching rules are of prime importance to the analysis; they expand the NP into its lexical categories.

8. $\text{NP} \longrightarrow \overset{\wedge}{\text{Det}} \text{N} (\# \text{S} \#)$

9. $\text{Det} \longrightarrow (\text{Prart}) \text{ det} (\text{Adj})$

10. $X \longrightarrow \text{CS}$ where $X = \{V, \text{Adj}, N, \text{Prart}, \text{det}, \text{Ints}\}$

⁴The arrow ----→ means "will eventually derive."

The recursive element (# S #) of Rule (8) is a major category which will eventually be responsible for attaching lexical categories to the NP.

A detailed explanation of the immediate constituents associated with the NP is made possible by Rule (10) which converts a lexical category into a matrix of features. This convention may be stated as follows:

If there is a base rule of the form $X \longrightarrow CS$, then the CS converts X into the matrix $[+X]$.

The feature $[+X]$ now prepares the way for the subcategorization rules.

2.2 The purpose of subcategorization rules is to effect a means of classification of lexical categories by assigning to a given matrix additional distinctive syntactic features. Application of these rules offers a decided advantage in that cross-classification can be easily performed. Subcategorization ultimately strives to distinguish all the subcategories of the lexical categories.⁵

In this group of rules the arrow \longrightarrow no longer signifies "rewrites as"; it now bears the instruction "to the given matrix is added." As a consequence of base Rule (10), the first subcategorization Rule (a) will add to the given matrix a choice of binary syntactic features. Rule (b) will continue the addition of features until the subcategorization has reached an ultimate conclusion.

$$(a) [+X] \longrightarrow [\infty F]$$

$$(b) [\infty F] \longrightarrow [BF \dots n]$$

⁵In a complete grammar, subcategorization would distinguish each lexical entry. Subcategorization along with selectional restrictions could, in theory, displace the semantic component. Semantics would then become a matter of pure syntax. A comprehensive grammar based on this assumption would be quite complex to say the least. In this analysis no consideration has been made for the semantic component.

2.20 The lexical category N will be the first to undergo subcategorization. N is said to be selectionally dominant, since its feature composition is derived without the use of context-sensitive rules. Context-sensitive in this case refers to the analysis of a structural environment, and not to the analysis of features within the same matrix. A second justification for selectional dominance is that the features of N will be analyzed by other subcategories. Subcategorization Rules (11-18) will consider the lexical category N.

11. $[+N] \longrightarrow \begin{bmatrix} +Pro \\ -Com \end{bmatrix}$
12. $[+Com] \longrightarrow \begin{bmatrix} +sg \\ +def \\ -cnt \end{bmatrix}$
13. $\left\{ \begin{array}{l} [+cnt] \\ [-Com] \end{array} \right\} \longrightarrow \begin{bmatrix} +An \end{bmatrix}$
14. $[+An] \longrightarrow \begin{bmatrix} \pm hum \end{bmatrix}$
15. $[+hum] \longrightarrow \begin{bmatrix} +masc \\ \pm 3p \end{bmatrix} / \begin{bmatrix} +Pro \\ +def \end{bmatrix}$
16. $[-3p] \longrightarrow \begin{bmatrix} \pm 1p \end{bmatrix}$
17. $\begin{bmatrix} -An \\ +cnt \end{bmatrix} \longrightarrow \begin{bmatrix} \pm Quan \end{bmatrix}$
18. $[-cnt] \longrightarrow \left\{ \begin{array}{l} [+Abst] / \begin{bmatrix} +sg \end{bmatrix} \\ [-Abst] / elsewhere \end{array} \right\}$

The first of these rules (Rule (11)) indicates that to the matrix $[+N]$ are added two features: plus or minus pronoun and plus or minus common.

These two features seem to represent universal claims about languages.

According to Greenberg, "All languages have pronominal categories involving at least three persons and two numbers" (1963:96).⁶

If the feature plus pronoun is present in the matrix, then a pronominal form will have to be introduced somewhere by some means. Similarly, Hockett claims "Every human language has proper names" (1961:21).

Thus it appears that the possible choices of Rule (11) are quite general and should be among the first features to enter the matrix [+N].

Any plus common noun, barring certain later restrictions, possesses the property of being singular or plural (plus or minus singular). The feature of definiteness and nondefiniteness is also quite apparent, since distinctions can be made by the determiners (articles) the, a, and Ø.⁷

the horse

a horse

Ø horses

It will be seen that the feature of definiteness will play a major role in the development of the determiner system. Another distinction which is possible with plus common nouns is that they may be countable or noncountable (plus or minus count).

⁶He also admits, ". . . but also any specific statement in this regard will have some exceptions" (1963:96).

⁷Minus common nouns are treated as invariably having the feature plus definite. It would be impractical to have the subcategorization apply in this case, when this same specification will be necessary in the lexicon anyway. The same applies for the specification of plus or minus singular. These features will be included as inherent features in the lexical entry (cf. 2.4). Inherent specification will make the distinction in Bill and The Andes.

fifteen horses

two men

*twelve sincerities

*three oils

Thus, Rule (12) adds these three features of number, definiteness and countability to all plus common nouns.

Rule (13) provides an excellent example of cross-classification. It states that all plus count and minus common nouns are capable of bearing the feature plus or minus animate. The feature of animateness offers a crucial syntactic distinction. Notice the example below.

The two horses were drinking water.

*The two rocks were drinking water.

Minus common nouns require the same distinction.

Bill is driving a new car.

*The Andes are driving a new car.

The next three rules are concerned with the more specific subcategories. Rule (14) makes the distinction of human and nonhuman in all plus animate nouns. And in turn, it is the plus human nouns that can enter into a very specific subcategorization. Any matrix containing the features plus pronoun, plus definite and plus human requires the addition of the two features of gender (plus or minus masculine) and person (plus or minus third person). Should the choice of non-third person be made, a further choice of plus or minus first person is required. These rules (Rules (15) and (16)) provide the syntactic information relevant to the introduction of certain pronominal forms (personal pronouns).

Upon returning to Rule (13), it is possible to continue the subcategorization of the feature minus animate. This feature may be present in a matrix containing plus count or minus common. The latter matrix will not be developed any further; inanimate proper nouns are a terminal subcategory. The former matrix of plus count and minus animate is developed further by Rule (17) which makes the distinction of the feature plus or minus quantity.⁸ Nouns having the feature plus quantity are typified by being capable of entering a particular transformation that results in the following strings:

a pail of water

five pounds of butter

The nouns pail and pounds display some aspect of measurement.

Another subcategory is apparent in the nouns water and butter (cf. example above). These nouns, often called mass nouns, are noncountable.

*fifty waters

*six butters

They may be further distinguished by their capacity of occurring in constructions similar to those above (a plus quantity noun, the preposition of and a mass noun). Rule (18) accounts for this by assigning the feature minus abstract. This matrix may have a plus or minus singular specification (mud and pants respectively). The alternate choice of plus abstract is restricted only to a matrix of plus singular (e.g. sincerity, fidelity, etc.).

⁸The feature of minus quantity could be subcategorized into numerous other subcategories. The grammar shall account for these by inherent specification in the lexicon (cf. 4b and c).

Numerous examples may seemingly prove these subcategorizations incorrect.

The two Bills are friends.

His first love deceived him.

A child needs lots of love.

He drank a coffee.

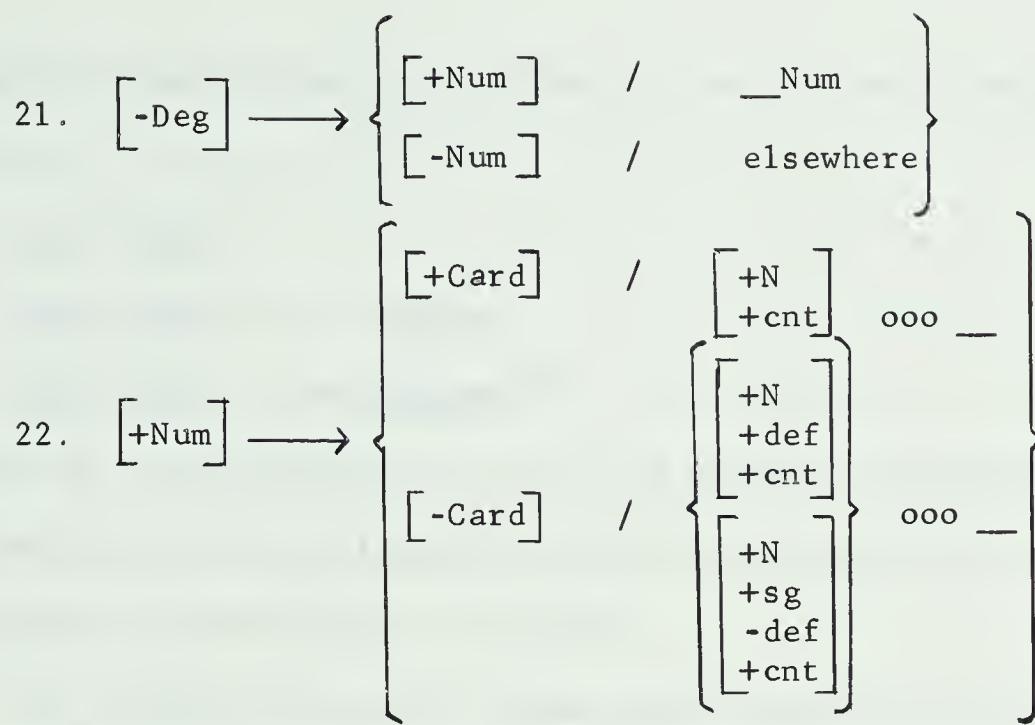
You have egg on your shirt.

It is obvious that minus common nouns may be plus count nouns (Bills) , plus abstract may be plus human (love) or minus abstract (love) , minus abstract may be minus quantity and vice versa. A means of accounting for this problem is to make separate listings in the appropriate places in the lexicon. That is, egg would be glossed in one place as minus quantity and in another as minus abstract.

2.21 Another lexical category which will undergo subcategorization is the Adj. Not all subcategories of Adj are dominated by NP. Those that occur in the Pred-Phrase will in time be optionally or obligatorily transformed into the NP. As a result, these rules of subcategorization will not only make distinctions by the assignment of features, but in addition will make contextual distinctions.

The following are the subcategorization rules for the matrix $[+Adj]$.

$$19. \quad [+Adj] \longrightarrow \left\{ \begin{array}{ll} [+Int] & / \det _ \\ [-Int] & / \text{elsewhere} \end{array} \right\}$$
$$20. \quad [-Int] \longrightarrow \left\{ \begin{array}{ll} [+Deg] & / (\text{Ints}) _ \\ [-Deg] & / \text{elsewhere} \end{array} \right\}$$



Rule (19) assigns the feature of plus intensifying to that subcategory which occurs immediately following the det of the NP. Adjectives of this sort are characterized by the fact that they may be inserted only under certain complex restraints (attributively) and cannot be embedded (predicatively).⁹

a mere lad -----> *a lad who is mere

the very man -----> *a man who is very

a total stranger -----> *a stranger who is total

Minus intensifying adjectives are those found in the Pred-Phrase. The first distinction within this category is directed to those adjectives which are found in that slot which may optionally be preceded by Ints. Rule (20) assigns to these the feature of plus degree.

⁹The solution offered in this analysis is questionable. Dwight Bolinger has presented an enlightening article on attribution and predication (1967:1-34). It would seem that the present plus intensifying adjective should be derived from certain major categories found in the Pred-Phrase. These adjectives would then be embedded under certain conditions.

Plus degree adjectives may occur alone or they may enter degrees of comparison.

very happy

more happy ----→ happier

most happy ----→ happiest¹⁰

Adjectives of this specification are not a terminal subcategory, but the subcategorization here will not be carried any further (cf. inherent specification in the lexicon, 13 b and c).

By virtue of Rule (21), minus degree adjectives subcategorize into plus numeral in the environment preceding the major category Num (cf. 2.1, Rule (4)) and into minus numeral in the environment where this particular subcategory can only occur alone. One major characteristic of the minus numeral subcategory is that it designates adjectives referring to minus abstract nouns.

the wooden table

an electric lamp

Further subcategorization might distinguish adjectives denoting color (yellow, red, etc.).

The final subcategorization of adjectives (Rule (22)) is concerned with the numerals (plus numeral adjectives). Each environment stated here depends on the noun-subject specification. For plus cardinal adjectives, the subject must be specified as a plus count noun (plus count nouns are countable).

¹⁰ The exact nature of the rules for the comparative and superlative has yet to be understood.

the horses which are five in number ----> the five horses
candles which are seventeen in number ----> seventeen candles

The minus cardinal numerals have their occurrence restricted to a more exact specification of plus count nouns. The noun-subject may be specified as plus definite (a) or plus singular and minus definite (b)

- (a) the horse which is fifth in rank ----> the fifth horse
- (b) a man who is second in rank ----> a second man

2.22 One final lexical category must still enter subcategorization; this is the determiner (det). It should be noted that the following rules are context-free. This fact might suggest that the subcategories of det are unrestricted in occurrence. On the contrary, contextual specification is complex enough to warrant the strict use of selectional rules in governing the lexical insertions.

Consider the following rules:

- 23. $[+det] \longrightarrow [-unique]$
- 24. $[-unique] \longrightarrow [+spec]$
- 25. $[+spec] \longrightarrow [+Dem]$

To the matrix $[+det]$ may be added the feature plus or minus unique (Rule (23)). Plus unique determiners (nonrestrictives) are recognized by their cooccurrence restrictions on relative clauses. That is, nonrestrictive determiners may cooccur only with relative clauses (cf. Smith, 1964:37-39; Thomas, 1966:156). Such determiners are Ø, I, you, he, she, it, and they. Further explanation will be offered in Section 2.3.

Rule (24) makes another distinction based along the same lines as the preceding rule. Minus unique determiners subcategorize into the feature plus specifying and minus specifying (restrictive). The latter restrictive subcategory will only allow the occurrence of the relative clause proper. Determiners of this nature are some, any, each, etc.

As a compromise between plus unique and minus specifying determiners, plus specifying determiners are both restrictive and nonrestrictive; that is, these determiners may cooccur with either relative or appositive clauses. They may also subcategorize into the feature plus or minus demonstrative (Rule (25)). The plus demonstrative determiners are this, that, these, etc. The oppositely specified subcategory consists of determiners such as we, you, the, a, and \emptyset .

This concludes the explanation of the subcategorization rules. In the next section, the grammar will expand the lexical subcategories into a new type of syntactic feature. The selectional rules will allow these subcategories to develop their own selectional restrictions.

2.3 This section of the base component utilizes a powerful device known as the selectional rule. It is designed to provide terminal subcategories with a statement of their "restrictions of cooccurrence" (Chomsky, 1965:95). Not all terminal subcategories require such a statement; some may be completely unrestricted while others may have certain restraints imposed by the context-sensitive rules of subcategorization. In order for these subcategories to receive such information, selectional rules must assume the general form

$X \longrightarrow CS / \alpha \beta$, where X is a terminal subcategory and α and β are lexical categories to be analyzed. The assigned lexical categories are the information imparted by the selectional rule. In the lexicon is found the exact analysis of these categories; the statement appears in the form of a selectional feature. Thus, any syntactic feature providing an analysis of cooccurrence is called a selectional feature. Consider the following selectional rules.

26. $[+Card] \longrightarrow CS / [\alpha][\beta]_{ooo} \quad \text{where } \alpha = +det$
 $\beta = +N$

27. $[+Int] \longrightarrow CS / [\alpha][\beta] \quad \text{where } \alpha = +det$
 $\beta = +N$

28. $X \longrightarrow CS / _ ooo [\alpha]$ where $\alpha = +N$
 X = $\begin{cases} [+det] \\ [+Prart] \end{cases}$

When the cardinal adjective (plus cardinal) occurs in the predicative sentence, it is obvious that restrictions are necessary in order to avoid such strings as:

*The horse is five in number.

*Horses are one in number.

The source of the problem here lies in the specification of the NP-subject. Rule (26) indicates that the lexical categories det and N will require analysis.¹¹ The selectional specification in the lexicon will supply the plus cardinal adjectives with the following selectional features:

five $[+[-unique] [-sg] ooo _]$

¹¹The variable marker ooo will include the embedded S when present.

[one [+ [+spec] [+sg] ooo _]]

The lexical insertion rule will allow these to fit in the proper frame if the selectional features do not display in their analysis an apposite specification to that of the corresponding lexical categories in the deep structure.

The plus intensifying adjective also demands a selectional feature. In this case, Rule (27) prescribes that plus intensifying adjectives must analyze the lexical categories det and N. The selectional feature will specify the restrictions of cooccurrence in both these categories. For instance, the adjective mere will be specified in the lexicon as follows:

mere [+ [+spec] _ [-Pro
 +sg
 -def
 +cnt]]

Its lexical insertion, as can be seen in the examples below, is very restricted.

a mere lad

a mere lad who is lonely¹²

*each mere lad

*the mere lad

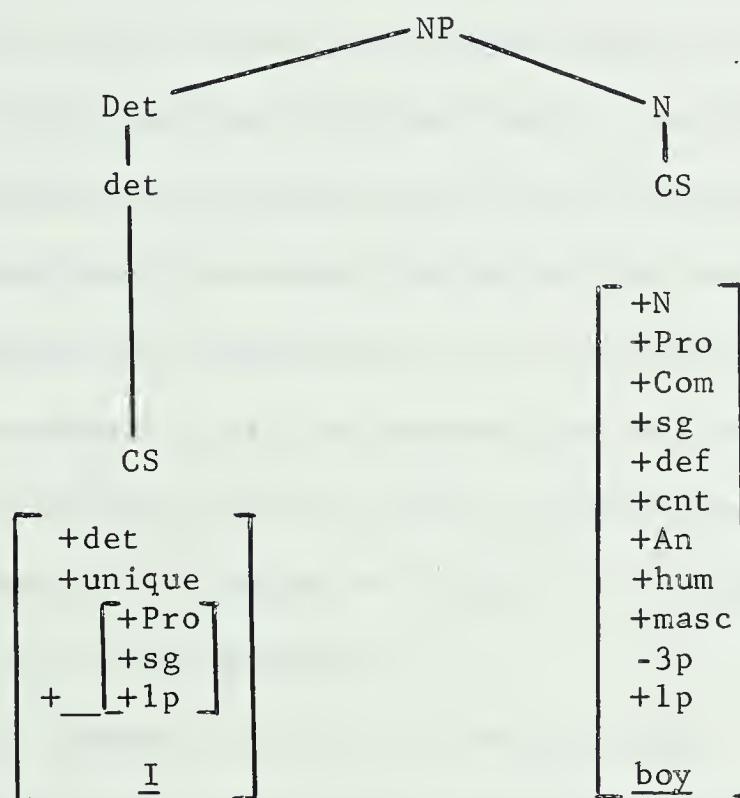
The last selectional rule (Rule (28)) has a number of terminal subcategories analyzing the lexical category N. Their selectional specification in the lexicon is self-explanatory.¹³

¹²Notice that adjectivalization cannot be performed in this example. Rule features will prohibit these transformations.

*a mere lonely lad

¹³The lexical category Prart (prearticle) deserves one brief remark. It should be noticed that it develops immediately from base Rule (10) into a selectional feature; no subcategorization is performed.

However, a few words of attention will be directed to the pronominal types of determiners. When plus pronoun appears in the matrix [+N], selectional features in the determiner will determine the possible lexical insertions. For example, the P-marker below illustrates under what conditions the first person singular pronoun may be inserted.¹⁴



No other plus unique determiner can enter this frame. If the specification of plus determiner developed into the subcategory minus specifying, no lexical entry would be possible. For instance, the determiner some which

¹⁴The introduction of pronouns as determiners has been proposed by Postal (1966). There are two reasons justifying such a system. Firstly, all pronouns should be provided with a referent in deep structure in order to facilitate a discourse analysis. The means offered by subcategorization and selectional cooccurrence is excellent for governing each specific lexical insertion. Secondly, these so-called pronouns fit simply into the restrictive and non-restrictive scheme of determiners.

may occur as two different lexical entries could not enter this frame. Its insertion would be blocked because of the opposite specification in the selectional analysis. The first entry is denied the insertion since the minus pronoun matrix in the statement of cooccurrence is oppositely specified to the feature plus pronoun in the matrix [+N]. Likewise, the second entry could become a pronominal form if it were not for the selectional analysis opposing the plus singular specification of the noun. Thus the selectional restrictions control the insertion of the pronominal determiners by analyzing the specification of the noun-head.

Selectional restrictions could be developed further; but for all practical purposes it will be assumed that all other selectional rules have been formulated and applied. With the discussion of the selectional rules now concluded, the attention will shift to the lexicon, the fourth and final section of the base component.

2.4 The grammar has thus far produced what is called a preterminal string. By this is meant that the matrices contain sets of syntactic features provided by the subcategorization and selectional rules. Before these preterminal strings can be of any value to the transformational component, they must be converted into terminal strings. A terminal string will contain the original set of syntactic features, a phonological representation, additional inherent features, if necessary, and all redundant features. The purpose of the lexicon is to provide a preterminal string with a phonological spelling and with any additional inherent features.

The lexicon will be considered as an unordered set of lexical items each possessing the pair D (a phonological spelling) and C (a collection of syntactic features). In converting a preterminal string, a specific operation is performed by the lexical insertion rule.

This rule states:

If Q is a complex symbol of a preterminal string and (D,C) is a lexical entry, where C bears no opposite specification to Q, then D and the unmarked features of C are added to Q.

This rule does not require that Q and C contain identical features; they may each bear distinct specifications. The insertion will be prohibited only when one or more features of Q are oppositely specified to the same features in C (cf. Prideaux, 1967:47). For a practical example of the lexical insertion rule at work, an instance may be found in 2.3 where the determiner some is inserted into its proper matrix despite the fact that the lexical category N contained the feature plus first person. The statement of cooccurrence in the selectional feature bore no opposite specification to that of the matrix [+N]. After the insertion rule has been applied, the matrix must still undergo several operations before the preterminal string can achieve a terminal status.

According to the specification of C in the lexicon, only the distinctive features are essential to the operation of lexical insertion (cf. lexical items below).

boy [+N, +cnt, +hum, +masc]

the [+det, +Dem, + $\left[\begin{smallmatrix} -\text{Pro} \\ +\text{com} \\ +\text{def} \end{smallmatrix} \right]$]

However, once lexical insertion has been performed, the non-distinctive features must be predicted in by a lexical redundancy rule (cf. Prideaux, 1967:54,56). This rule operates on the principle that if a noun is plus human, then, as a consequence of the rule $[+\text{An}] \longrightarrow [+\text{hum}]$, the noun

must bear the feature plus animate. Similarly, a plus count noun must also be plus common by virtue of the rule $[+Com] \longrightarrow [+cnt]$. Thus, the hierarchic sequence of the lexical entry boy would be:

boy $[+N, +Pro, +Com, +sg, +def, +cnt, +An, +hum]$

Lexical redundancy operates in the very same manner for the analysis of cooccurrence in the selectional feature. By applying the lexical redundancy rule to the selectional feature of the, the only non-distinctive feature to be filled in is plus noun. When all the redundant features have been inserted, the determiner appears as follows:

the $[+det, -unique, +spec, -Dem, + \begin{bmatrix} +N \\ -Pro \\ +com \\ +def \end{bmatrix}]$

Another aspect of redundant specification requires the convention of negative specification. Consider a given preterminal string containing the feature plus noun. If any lexical entry contains opposite specification to the given complex symbol, it may not be inserted. However, should this not be the case, any lexical category could be inserted; a verb could enter the matrix of plus noun. In order to avoid this unfortunate situation the convention of negative specification automatically assigns all other negatively specified categories to the given matrix. As a result the given matrix would be specified $[+N, -V, -Adj, -det, -Ints, -Prart, \dots]$.

The final type of specification to be discussed concerns the manner of specifying selectional features. Chomsky offers a choice of five possible conventions (1966:111). This analysis will choose his second suggestion.

(ii) list only the features corresponding to frames in which the item can appear ... (... we add the further convention that an item is specified in the opposite way for every contextual feature not mentioned in its lexical category).

Therefore, all selectional features will be positively specified.

I [+ __ $\begin{bmatrix} +\text{Pro} \\ +\text{sg} \\ +1\text{p} \end{bmatrix}$]
two [+ [-unique] [-sg] ooo __]

Then in keeping with this suggestion, negative specification of all other selectional features will be necessary in each matrix containing a positively specified selectional feature. The determiner the in a terminal string would be thus specified in the following manner:

the [+ __ $\begin{bmatrix} -\text{Pro} \\ +\text{Com} \\ +\text{def} \end{bmatrix}$, - __ $\begin{bmatrix} +\text{Pro} \\ +\text{sg} \\ +1\text{p} \end{bmatrix}$, - __ $\begin{bmatrix} -\text{Pro} \\ +\text{sg} \\ -\text{def} \\ +\text{cnt} \end{bmatrix}$, ...]

Along with various types of specification already discussed, the lexicon also contains a particular type of feature known as an inherent feature. This feature is not derived by any rule; it merely occurs as an additional feature in a lexical item. When the lexical insertion rule is applied, the inherent feature is added to the complex symbol (Q). The plus degree adjectives contain inherent features.

obvious [+Adj, +Deg, +F]
beautiful [+Adj, +Deg, -TX]

The feature plus factive ([+F]) inherently distinguishes those adjectives which may enter the factive nominal transformation (T1). It could have been possible to arrive at this subcategory by continuing the subcategorization of plus degree. For the sake of

simplicity however, the analysis will employ an inherent feature. Likewise, the feature minus transformation X ([-TXI]) indicates that these adjectives may not enter that particular transformation which attaches the comparative and superlative suffixes to the stem. If this inherent rule feature were not present, an inadmissible form would be derived.

beautiful ----→ *beautifuler

These inherent rule features are always negatively specified. Consequently, a convention of positive specification is necessary to assign the oppositely specified feature to all categories not marked [-TXI].

In summary, the lexicon has provided the complex symbol with subcategorization, selectional, and inherent features. It has also added to the matrix a phonological spelling. The general conventions of redundant and opposite specification have supplied the categories with the remaining necessary features. With these operations completed, the preterminal strings have finally achieved terminal status. The grammar may now proceed to the transformational component.

2.5 The transformational component is designed to act upon the P-markers generated by the base rules. Only terminal strings may be present in these P-markers, since transformations may not operate on any deviant strings. When any one transformation is applied to a P-marker, the resulting structure is a derived P-marker. The output of the transformational component is then a final derived P-marker which is the surface structure of a sentence. In the present analysis no provision will be

made for the phonological component to interpret the final derived P-markers. Although the T-rules of this analysis map the deep structure of the NP into a surface structure, the transformational component lacks completeness in this regard. A large number of additional transformations are required for a more thorough analysis (e.g. the comparatives, superlatives, nominalizations, conjunctive clauses etc.). Thus, the transformational component in this analysis will map some P-markers into final derived P-markers while others will remain with an intermediate structure.

Before proceeding to an individual discussion of each transformation, certain remarks concerning particular conventions and general operations are essential to a clearer understanding of the T-rules. One such remark concerns the relative ordering of these T-rules. In a more comprehensive grammar, these transformations might in fact not occur in the same sequential order; numerous other transformations might intervene between the rules presented in this analysis. Hopefully however, the ascending order should remain essentially the same. Each transformational statement will include a reference as to whether the rule is optional or obligatory. Obligatory transformations are unspecified, while optional T-rules are marked as such.

The variables in the structural description shall require some special attention. Only one symbol (X) shall be used as a variable; the assumption being that one variable will be equal to the other only when so specified ($X = X$). However, when stating the condition in the structural description, it is often found that the variable is somewhat

too powerful. In order to limit the power of X, a particular convention may be adopted. Consider the following structural description.

SD: $X [+det] \underset{2}{X} [+N] \underset{3}{X}$
 $\quad \quad \quad \quad \quad \underset{4}{X}$

The variable (3) could refer to any sequence of terminal categories.

In other words, a machine scanning the structural description might interpret (2) as being the determiner of the subject and (4) as being the noun of a distant nominal element. As a means of avoiding this problem, the analysis shall adopt a convention of categorical dominance. This convention merely defines the dominating category of any items given in the structural analysis. Thus, if there is a statement: "Cond: 2-4 are dominated by the same NP" the structural description will consider only the members found under the domain of the NP.

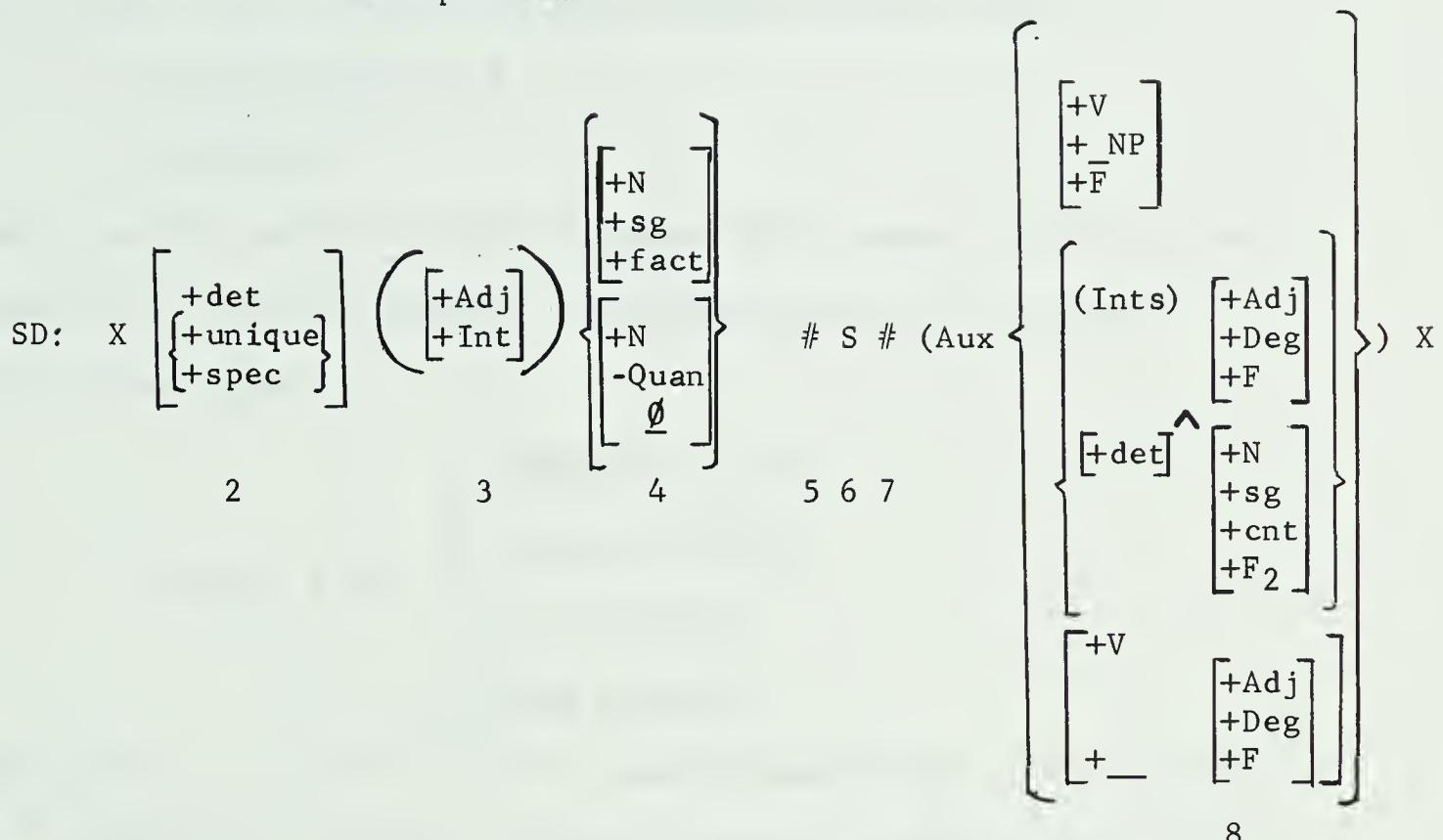
The operation of a structural change, as presented in this analysis, is confined to two levels. The first level is associated with changes in the constituent structure (i.e. permutation, addition and deletion may be performed on any given structural description). This level of change is recognized by the form in which the rule is stated. If there is a rule of the form $X \longrightarrow \hat{X} A$ (or $A \hat{X}$) then the instruction requires that to the immediately dominating major category of X is attached the element A. It should also be noted that according to convention, a rule of this form can never be applied recursively. The second level of change in a T-rule is the addition of a feature to a given matrix. This type of structural change operates in the same manner as the subcategorization rules; the arrow bears the instruction "to the given matrix is added." Hence, the structural change, it may be said, operates on either a level

of categorial rearrangement or on a level of change in syntactic specification.

In general, when considering the transformational component of this analysis, it should be kept in mind that the T-rules were designed to be as compact as possible. A number of transformations have been allotted more power than would be necessary in a general grammar. It is quite evident by the numerous conditions stated in the T-rules, that the transformations could be more simply expressed if they were not collapsed into one rule. A good case in question is T11. The discussion of this rule admits that a simpler and more general description of this type of post-nominal modifier could be offered by three transformations rather than one. Several other T-rules exemplify the same situation (cf. T2, T13, T14, and T18).

In the subsequent detailed presentation of each individual transformation, the T-rule is first stated and then discussed. The discussion will strive to explain the operation of the transformation in terms of its own internal function as well as in terms of its relationship with other T-rules. This relationship may be confined either to the transformations within the given grammar or to those within an ideally complete grammar. When and if the need arises, the discussion will also provide the necessary justification for presenting the T-rule in question. A small number of transformations will also be further illustrated by the inclusion of a derived P-marker. The first transformation to be discussed will be the factive nominal.

T1. Factive Nominal Optional



Cond: $Q \neq 6$

SC: 6 \longrightarrow that⁶; 5,7 \longrightarrow null

The Rule (T1) is a general transformation which sets up the factive nominal. Some of the derived P-markers from the transformation will be required to enter other more specific factive nominal T-rules. In scanning the structural description (SD), it is seen that only two determiners may occur; they are it and the. These cooccur with specific nouns; it with the dummy carrier \emptyset ¹⁵ and the with an optionally intervening plus intensifying adjective and a singular plus factive noun.

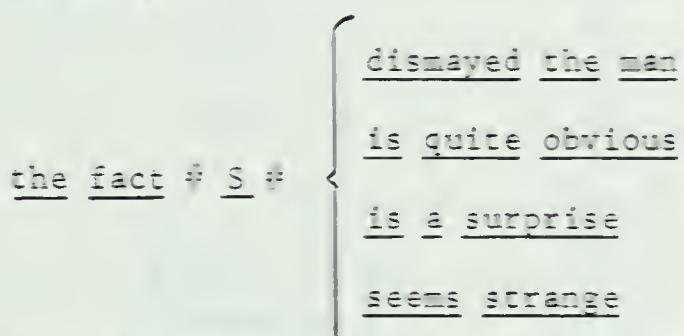
¹⁵The dummy carrier \emptyset may be inserted into any frame containing plus noun and plus pronoun. The only possible specification which would prohibit its insertion would be minus pronoun. In this case, the complex symbol must have derived the feature minus quantity. In a complete grammar, plus factive would have been derived instead.

As a result, the terminal strings in these two cases might be:

the very fact * S *

it Ø * S *

The structural analysis of (8) accounts for a number of restrictions possible in this environment. Each frame from top to bottom is illustrated below.



The condition does not allow the question marker (?) in the embedded S.¹⁶ Without this condition unwanted question transformations would be possible.

*the fact that did the man go dismayed you

In the structural change (SC), the factive morpheme that is attached to the NP in the position before S and the sentential boundaries are deleted. Listed below are some possible derived strings:

- (a) the very fact that the man came is a tragedy
- (b) it Ø that the man came is quite true
- (c) the people know it Ø that the man came

Examples (b) and (c) each require one more obligatory transformation.

A permuting transformation will rearrange (b) into:

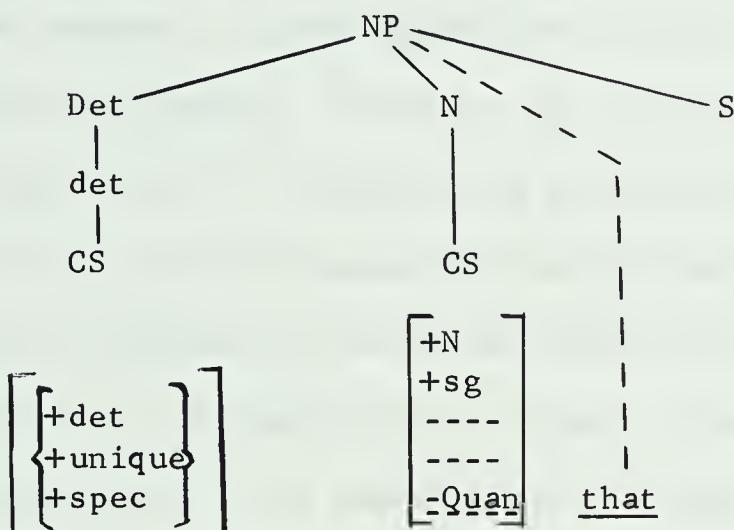
¹⁶The symbol ($\not\in$) used in the condition means "is not contained in." If the symbol occurs without the slanted line (\in), it then signifies "is contained in."

it \emptyset is quite true that the man came¹⁷

Example (c) requires the deletion of the determiner it.

the people know \emptyset that the man came

The derived P-marker from T1 is:



T2. Relativization

SD: $X \left[\begin{smallmatrix} +\text{det} \\ +F \\ 2 \end{smallmatrix} \right] \left[\begin{smallmatrix} +N \\ 3 \end{smallmatrix} \right] \# X \left[\begin{smallmatrix} +\text{det} \\ 4 \end{smallmatrix} \right] \left[\begin{smallmatrix} +N \\ 5 \end{smallmatrix} \right] X \# X \left[\begin{smallmatrix} +N \\ 6 \end{smallmatrix} \right] \left[\begin{smallmatrix} +N \\ 7 \end{smallmatrix} \right] X \# X \left[\begin{smallmatrix} +N \\ 8 \end{smallmatrix} \right] \left[\begin{smallmatrix} +N \\ 9 \end{smallmatrix} \right]$

Cond: (a) $\overset{\wedge}{2} \overset{\wedge}{3} = \overset{\wedge}{6} \overset{\wedge}{7}$, $Q \neq 5$, $+F = \{+unique\}$

SC: $6 \longrightarrow +\text{App}; 4, 7, 9, \longrightarrow \text{null}$

Cond: b $\overset{\wedge}{2} \overset{\wedge}{3} = \overset{\wedge}{6} \overset{\wedge}{7}$, $Q \neq 5$, $+F = \infty \text{spec}$

SC: $6 \longrightarrow +\text{Rel}; 4, 7, 9 \longrightarrow \text{null}$

Relativization of the embedded S is a very important transformation in that it is responsible for the attachment of prenominal and postnominal modifiers to the intermediate structures of NP. T2 is an obligatory transformation acting upon the identity criterion ($\overset{\wedge}{2} \overset{\wedge}{3} = \overset{\wedge}{6} \overset{\wedge}{7}$). The crucial factor in the conditions stated is the scheme of restrictive and nonrestrictive determiners. The optional condition (a)

¹⁷A very late T-rule will delete all matrices containing plus noun and plus pronoun (\emptyset included).

requires either a plus unique or plus specifying determiner. These, of course, are the restrictives which may occur only with appositive clauses. Subsequently, the feature plus appositive is predicted into the determiner matrix (6), and the sentential boundaries and the noun (7) are deleted.¹⁸ The presence of plus appositive may later serve as a marker for intonational assignment. Condition (b) is obligatory when the determiner will require that the feature plus relative be predicted into the matrix (6) so that relative clauses may be the end result.

With the deletion of sentential boundaries, a new convention will be necessary in listing the SD's. When a relativized S occurs in a SD, the first part of S to be analyzed will be specified and the remainder of S, if it is not equal to null, shall be accounted for by the variable X. Thus, if two variables occur adjacently (XX), the first is the remainder of the embedding and the second is any other desired part of the sentence.

The following strings are derived by T2:

the man [+det]
the man [+App] went away ----> the man, who went away,

I Dick [+det]
I Dick [+App] am tall ----> I, who am tall,

each man [+det]
each man [+Rel] works ----> each man who works

we boys [+det]
we boys [+Rel] play football ----> we who play baseball

¹⁸A more adequate solution here would be to pronominalize (7) by predicting the feature plus pronoun. The deletion of the plus pronoun matrix would take place after verb agreement. However, this analysis shall delete (7) in order to keep the SD's as simple as possible.

T3. Postdeterminer Adjectivalization Optional

SD: X det X $\left[\begin{smallmatrix} +\text{N} \\ 4 \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \\ 5 \end{smallmatrix} \right]$ (S) Tn $\left[\begin{smallmatrix} +\text{Adj} \\ \infty \text{Card} \\ 8 \end{smallmatrix} \right]$ Num X
2 3 6 7 9

Cond: 2-4 are dominated by the same NP, $\left[\begin{smallmatrix} +\text{Adj} \\ \infty \text{Card} \\ 8 \end{smallmatrix} \right] \not\models 3$

SC: 2 _____ 2⁸; 5, 7-9 → null

This transformation is the first of a number of T-rules using the relative-predicative clause. The purpose of T3 is to insert numeral adjectives into a position dominated by Det (cf. Thomas, 1966: 81-84). Numeral adjectives, when occurring in a prenominal position, appear immediately following the det. If other adjectives are present, they will always precede them. Thus, the most convenient means of distinguishing numeral adjectives from other adjectives is to consider plus numeral adjectives as a constituent part of Det in the intermediate structure of NP. Consider the following examples.

the first fifteen black woolen sweaters

*the black woolen first fifteen sweaters

T3 is optional because other constructions may be derived from the same given SD. For instance, the relative clause could remain as is, or if two numeral adjectives were present in the postnominal embedding, a conjunctive transformation (upon certain restrictions) could take place.

the horses which are five in number

the horses which are first in rank and ten in number

The alpha specification in (3) and (8) restricts the arrangement in such a way that two numerals of the same feature can never be inserted. The variable (3) takes into account that the insertions are executed cyclically (only two insertions are possible). Thus the condition will prevent such strings as:

*the three five horses

*the fifth tenth horse

With the condition satisfied, the SC will attach the numerals to Det and make the proper erasures. The following strings are thus made possible by T3.

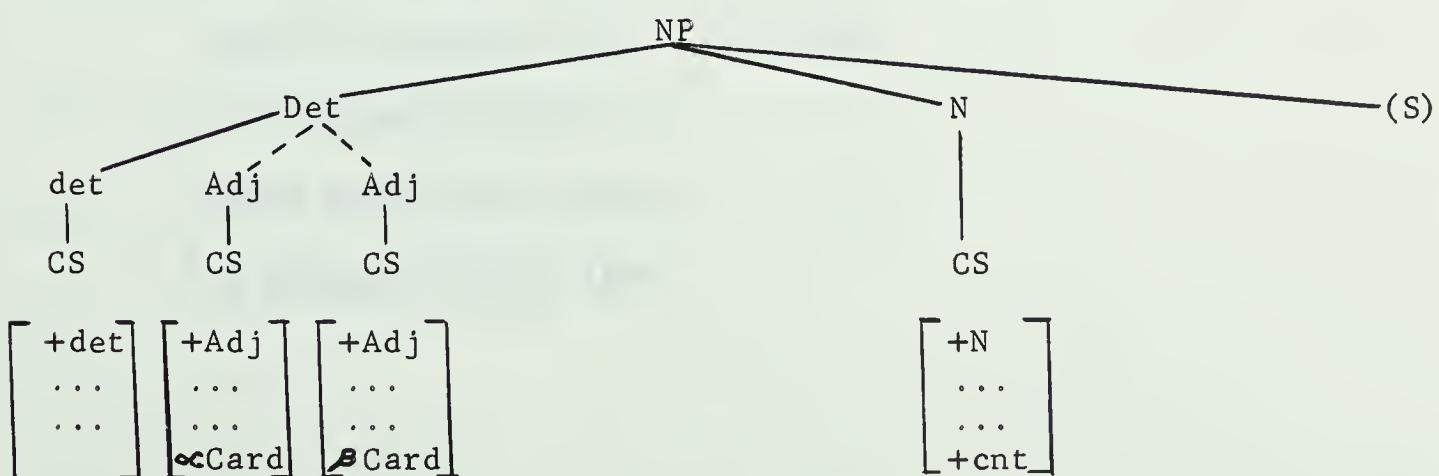
the first five horses

the five first horses

you second three boys

every fifth horse

The P-marker below has been derived by T3.



T4. Prenominal Adjectivalization Optional

SD: X (Ints) X [+N] [+det] (+Rel) (S) Tns (Ints) [+Adj] X
2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, if $[-\text{Num}] \sqsubseteq 9$

then $[-\text{Num}] \not\sqsubseteq 3$

SC: 4 \longrightarrow $\overset{\wedge}{8} \overset{\wedge}{9} 4$; 5,7-9 \longrightarrow null

T4 optionally inserts plus degree and minus numeral adjectives into a prenominal position. Each of these adjectives displays its own characteristic behavior by the manner in which it may be attached to the NP. The plus degree adjective and its optional intensifier (Ints) are inserted recursively without any limitation on the number of insertions. These insertions will all take place before a minus numeral adjective appears. Herein lies the major difference in behavior of these adjectives; only one minus numeral adjective can be inserted into that position immediately preceding the noun. The condition stated will block the SC if a second minus numeral adjective occurs in (9). In the examples below, the unstarred strings are derived by T4, while the others further illustrate the above discussion.

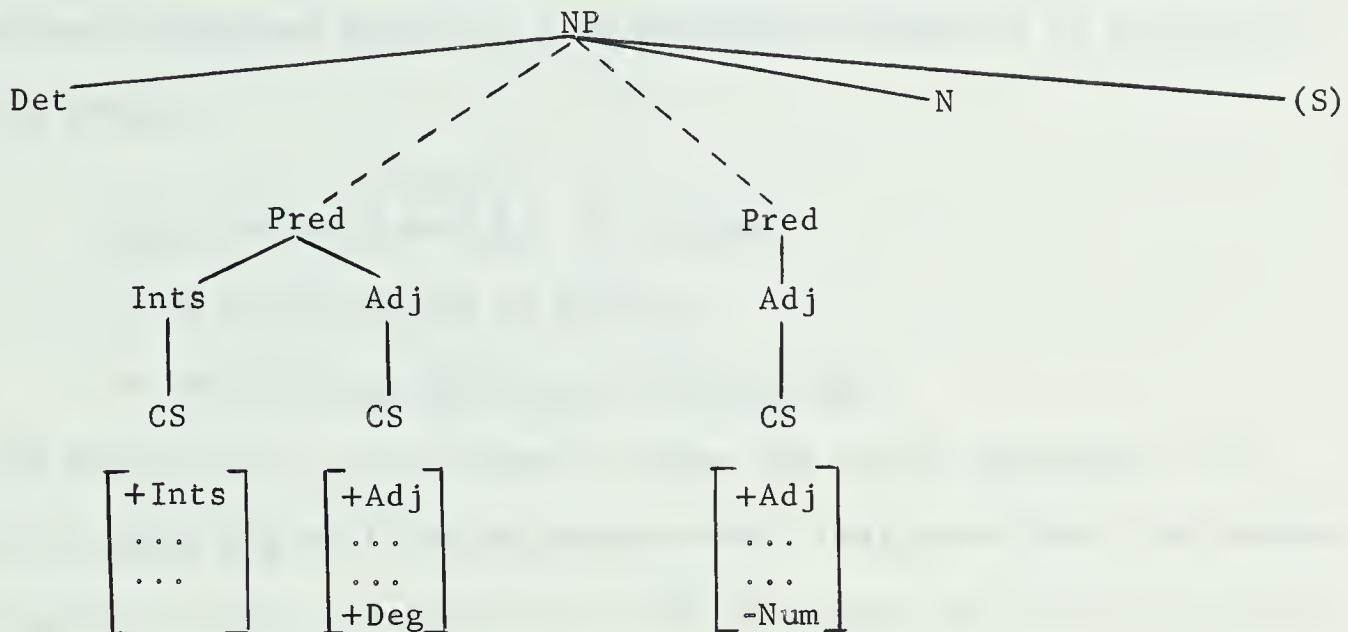
the very beautiful very tall woman

a very heavy wooden door

*these wooden tall tables

*an electric pretty lamp

A sample derived P-marker is given below.



T5. Genitivization Optional

SD: X the X $\left[\begin{smallmatrix} +\text{det} \\ 2 \end{smallmatrix}\right]$ $\left[\begin{smallmatrix} +\text{Rel} \\ 3 \end{smallmatrix}\right]$ (S) Tn of (Prart) $\left[\begin{smallmatrix} +\text{det} \\ 6 \end{smallmatrix}\right]$ X $\left[\begin{smallmatrix} +N \\ 7 \end{smallmatrix}\right]$ X $\left[\begin{smallmatrix} +N \\ 8 \end{smallmatrix}\right]$

Cond: 2-4 are dominated by the same NP, 7-11 are dominated by Pos

SC: 9,11 \longrightarrow +Gen, 7 \longrightarrow null

T6. Prenominal Genitive Determiner Optional

SD: X the X $\left[\begin{smallmatrix} +N \\ 2 \end{smallmatrix}\right]$ $\left[\begin{smallmatrix} +\text{Rel} \\ 3 \end{smallmatrix}\right]$ $\left[\begin{smallmatrix} +\text{det} \\ 4 \end{smallmatrix}\right]$ (S) Tn Det X $\left[\begin{smallmatrix} +N \\ 7 \end{smallmatrix}\right]$ $\left[\begin{smallmatrix} +\text{Gen} \\ 8 \end{smallmatrix}\right]$ X $\left[\begin{smallmatrix} +\text{Gen} \\ 9 \end{smallmatrix}\right]$ X $\left[\begin{smallmatrix} +N \\ 10 \end{smallmatrix}\right]$

Cond: 2-4, 8-10 are dominated by the same NP

SC: 2 \longrightarrow $\overset{\wedge}{2}$ 8-10; 2,5,7-10 \longrightarrow null

As will be seen in the following discussion T5 produces a string which may be further acted upon by T6. The first of these T-rules genitivizes the NP dominated by Pos (possessive). The second shifts this NP into a prenominal position hanging from Det. Both these transformations are optional.

In the event that the option of T5 is bypassed, the string described could lead either to a postnominal modifier or to a relative clause proper.

the black hat $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ is of the man
----> the black hat of the man
----> the black hat which is of the man

On the other hand, if the option is taken and the SD satisfied, the major category Pos will become genitivized. This means that the feature plus genitive will be inserted into the determiner (9) and the noun (11). The reason for genitivizing both (9) and (11) is apparent in the examples below. The preposition of is no longer required after genitivization; it is deleted.

the black hat $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ is of $\left\{ \begin{array}{ll} \left[\begin{smallmatrix} +\text{Gen} \\ \underline{\text{the}} \end{smallmatrix} \right] & \left[\begin{smallmatrix} +\text{Gen} \\ \underline{\text{man}} \end{smallmatrix} \right] \\ \left[\begin{smallmatrix} +\text{Gen} \\ \underline{\text{I}} \end{smallmatrix} \right] & \left[\begin{smallmatrix} +\text{Gen} \\ \underline{\text{Dick}} \end{smallmatrix} \right] \end{array} \right.$
----> the black hat which is $\left\{ \begin{array}{l} \underline{\text{the man's}} \\ \underline{\text{mine}} \end{array} \right.$

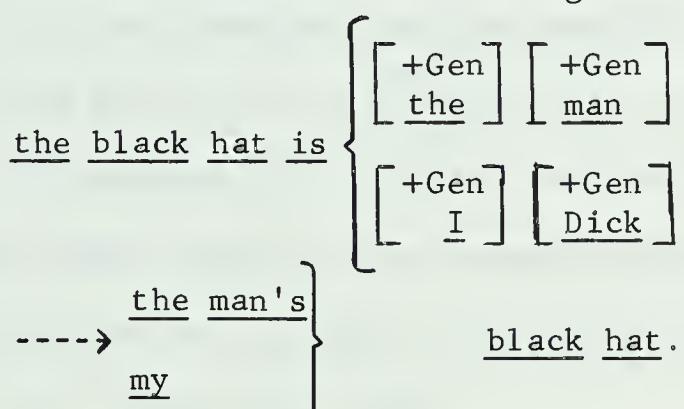
T6 may optionally transform the genitive construction into a prenominal position. The determiner the in the SD insures that the noun will have the feature plus definite. Justification for the attachment of the genitive determiner to Det is obvious in the given examples. The genitive determiner always occurs before the previously inserted plus degree and minus numeral adjectives. It should also be noted that

this T-rule may operate recursively.

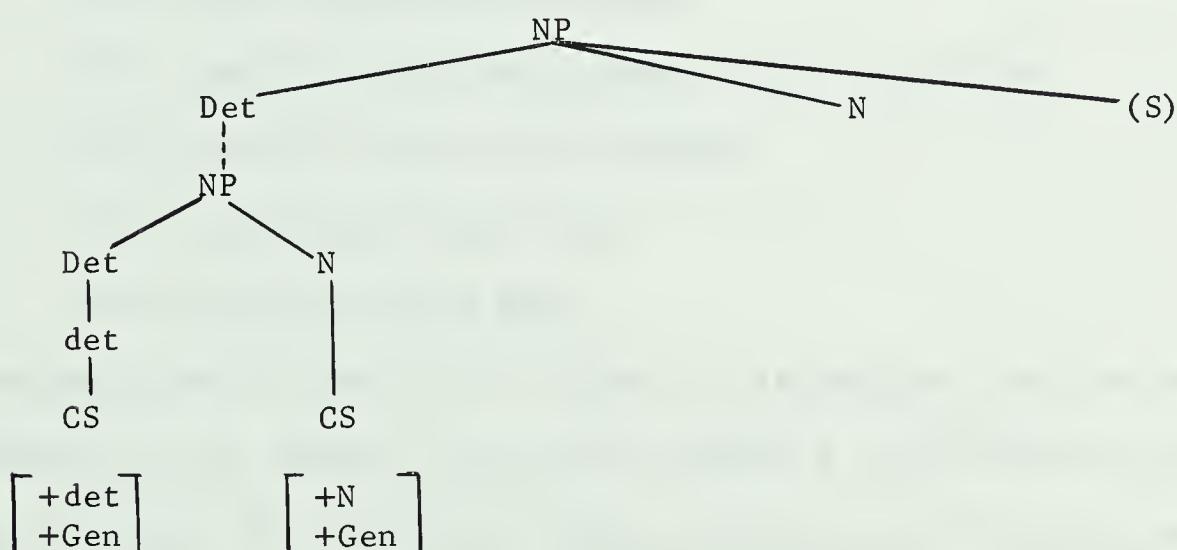
the man's first ten very heavy wooden tables

my second wife's first husband

Thus the transformation attaches the genitive construction to the Det positioning it immediately after det. The deletion nullifies the and the relative clause.¹⁹ The same strings from T5 are derived by T6.

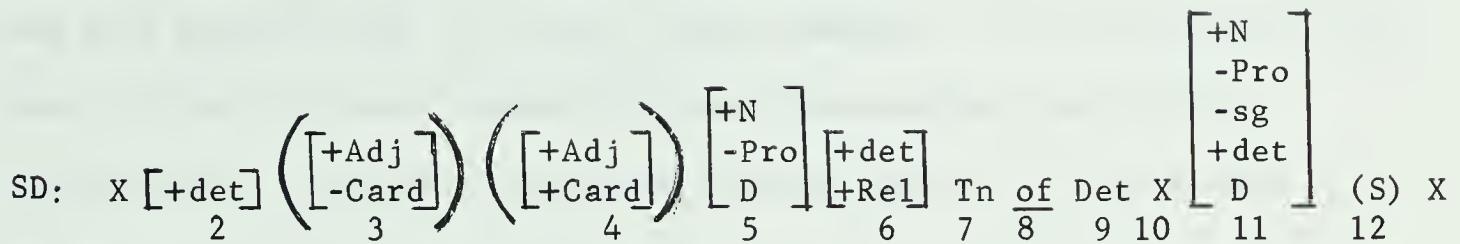


A derived P-marker from T6 might resemble the following.



¹⁹The deletion of the is irrecoverable in this SC. For a deletion to be recoverable, the item nullified must be expressed in terms of another item (cf. Chomsky, 1965:145). As a result, another transformation would be necessary to cancel (2). However, for the present analysis the deletion shall remain as shown above in order to minimize the number of transformations.

T7. Postnominal Determiner



Cond: if $[+spec] \in 2$ and $[+def] \in 5$ then 3 (4) occurs, 5 = 11 in D,

9 - 12 are dominated by the same NP

SC: $5 \longrightarrow +Pro, 5 \xrightarrow{\wedge} 5^{8-12}; 6-12 \longrightarrow \text{null}$

T7 accounts for a rather restricted type of construction. Its discussion shall begin with an enumeration of the possible grammatical strings followed by a number of ungrammatical ones.

- (a) each of the ships
- (b) one of the last two horses
- (c) just the last two of those first five horses
- (d) *the five first of the horses
- (e) *we fifteen of the boys
- (f) *the five of the boys

In analyzing the SD from left to right, it is noticed that the optional occurrence of the cardinal adjectives demands a particular order (cf. example (c) and (d)). The first condition stated provides the restriction that a plus specifying determiner and a plus definite noun must cooccur with an obligatory minus cardinal adjective and an optional plus cardinal adjective. Example (f) is thus ungrammatical; a plus cardinal adjective may not occur alone under this condition. The frame (5) requires a specification of minus pronoun and plus count (this latter feature is automatically understood). Noun (11) must likewise contain

minus pronoun as well as the additional specification of minus singular and plus definite (cf. the first three examples). It is further stated that (5) and (11) must contain the same phonological spelling D.

Justification for such a condition is quite evident in the example below.

each boy $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ is of the last fifteen boys

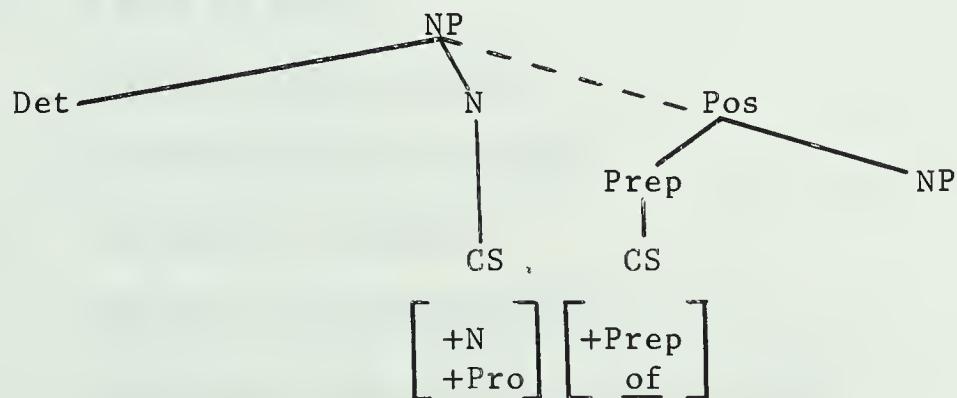
The SC eliminates the redundancy of information provided by the presence of (5) and (11). This process is a simple matter of pronominalizing the noun (5). An outright deletion of (5) is not justifiable since this noun is responsible for the verb agreement in a later rule.

each of the boys is working

*each of the boys are working

The major category Pos (8-12) is then attached postnominally to the NP.

T7 assigns the following derived P-marker:



T8. Postnominal Modifier Quantity-Mass

SD: X $\left[\begin{smallmatrix} +\text{N} \\ +\text{Quan} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn of Det X $\left[\begin{smallmatrix} +\text{N} \\ -\text{Abst} \end{smallmatrix} \right]$ (S) X
2 3 4 5 6 7 8 9

Cond: 6-9 are dominated by the same NP

SC: 2 → 2 ↑ 5-9; 3-9 → null

T9. Postnominal Modifier Locative Optional

SD: X [+N] [+det] Tn Loc (Tm) X
2 3 4 5 6

SC: 2 → 2 ^ ^ 6; 3-6 → null

These two transformations are both reductions of predicative relative clauses. To be more specific, they select certain prepositional phrases and attach them postnominally. In T8, the category of Pos which dominates a NP containing a minus abstract noun is assigned a position immediately following a plus quantity noun. It should be noted that this T-rule is obligatory; a relative clause proper from the given SD would be ungrammatical (cf. examples (a)). The second rule T9 is concerned with the predicative Loc and the optional category Tm (time) which is introduced by base Rule (2). If the option is not taken, the SD will result in a relative clause proper. The examples in (b) are strings derived by T9.

(a) a pail of water

the five loads of gravel

*the box which is of apples

(b) the bench in the park

that man in the room today²⁰

the horse in the corral behind the barn

²⁰ The adverb today should be considered as a pronominalized form of a prepositional phrase dominated by Tm.

T10. Postnominal Modifier Pred-Phrase Optional

SD: X [+N] $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ Tn be ing VP X X
2 3 4 5 6 7 8

Cond: $\begin{bmatrix} +V \\ +\underline{\text{Pred}} \end{bmatrix} \neq [\text{V}, \text{VP}]$

SC: 2 \longrightarrow $\overset{\wedge}{2}$ 6-8; 3-8 \longrightarrow null

Previous T-rules have optionally reduced predicative relative clauses into postnominal modifiers. As will be seen in T10 and T11, various other types of relative clauses may undergo such reductions. For instance, the present transformation strives to reduce such clauses containing a transitive or intransitive verb in the main verb (cf. condition).

The tense (4) in the SD may be of either choice; that is present or past. Consequently, ambiguous constructions are derived and the recoverability of T10 is no longer preserved. No adequate explanation to this problem has been found. However, it would seem that in order to disambiguate these strings, one would look beyond the scope of the grammar to an interpretation of situational criteria. The following examples clearly illustrate the resulting ambiguity.

the man $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ was walking away tripped - - -

the man walking away tripped

I Dick saw the man $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ is eating dinner - - -

I saw the man eating dinner

A further look at the Aux. requires an explanation of the obligatory occurrence of Aspect. The presence of be+ing renders the morpheme

ing available to the late affix shift rule. This rule will shift the morpheme into a position immediately behind the matrix [+V].

The stated condition excludes all copulative verbs from the main verb in the VP. This would then include all transitive and intransitive verbs as well as the forthcoming copula verb. If the exclusion were not made, ungrammatical constructions would result.

*the man seeming tired took a pill

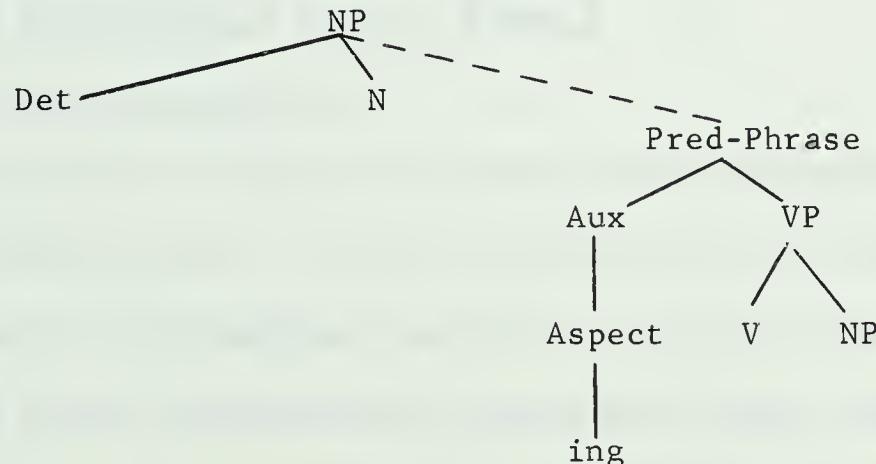
*I ate the steak tasting bad

The following strings have been derived by T10. Also notice a sample derived P-marker.

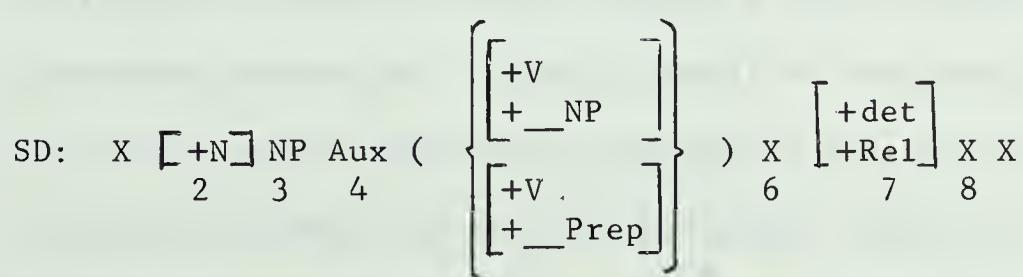
the man walking down the street

a horse eating hay

the child being angry



T11. Postnominal Modifier NP Pred-Phrase Optional



SC: 2 → $\overset{\wedge}{2} \overset{\wedge}{3-6} \overset{\wedge}{8}$; 3-8 → null

The SD of T11 presents a somewhat different type of relative clause. In this case, the subject (3) of the embedded S is not the relativized NP. This particular category (the relativized NP) can only be found in the Pred-Phrase where it serves the function of either a direct object or a so-called object of the preposition. The SC (when the SD has been satisfied) will copy all of the embedded S except for the relativized NP. T11 illustrates its postnominal modifiers below.

- (a) the book I Dick gave $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] to you Bill - - →
the book I gave you$
- (b) the man the lady was walking with $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] - - →
the man the lady was walking with$
- (c) a room you Bill were in $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ - - →
a room you were in

The SD of T11 as it now stands will produce numerous ungrammatical constructions. It must be noted that this T-rule is very general and in fact could be simplified into three transformations. Since the given SD may accomodate three possible T-rules, three conditions will be necessary. These conditions have not been formally included, but each one shall receive a brief consideration in the subsequent discussion. Item (5) shall be the focal point of attention. The first type of verb to be analyzed is a transitive verb which occurs immediately before its relativized direct object (6 = null). The second variable (8) may or may not be equal to null. In example (a),

(8) is not equal to null. A second type of verb is the intransitive verb. It is clear that this verb must be followed by at least one of its possible major categories (i.e. 6 ≠ null). Notice example (b). The third and final condition considers (5) as being equal to null. Consequently, the only possible construction of this nature would be the predicative sentence which requires the copula prediction. In this case, the categories Loc and NP would be the only possible predators. The variable (6) would have to account for Loc (6 ≠ null) and NP (6 = null). As for the remaining predators, they would result in aberrant constructions.

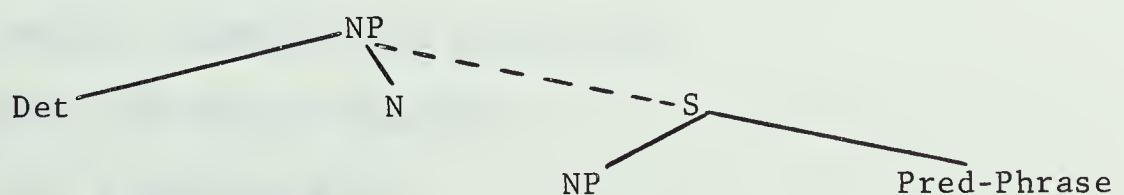
- (a) the number they are fifteen in $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ ----→
the number they are fifteen in
- (b) the quality the wool is of $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ ----→
the quality the wool is of

One class of verbs completely omitted in the SD is the copulative verbs. It would seem that only one such verb is capable of entering the transformation.

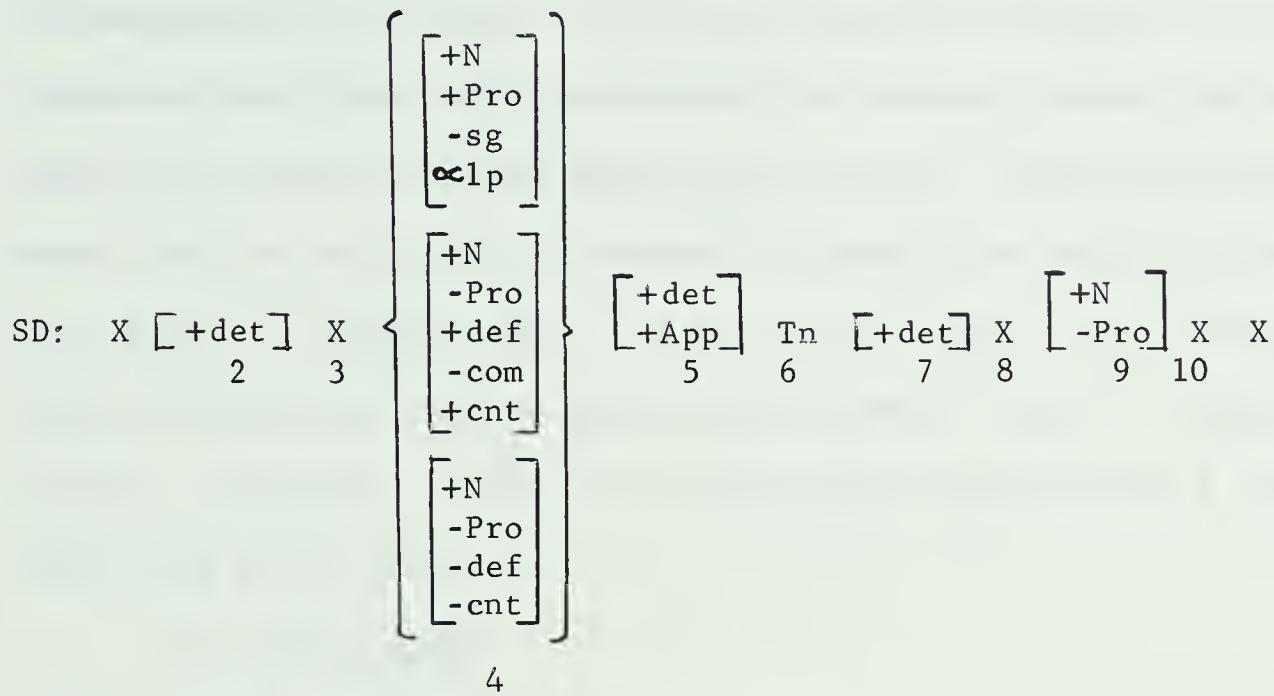
the man he was becoming

The verb become has a close resemblance to the copula be in that it may cooccur with NP and (Ints) Adj. Nevertheless, it will be considered as a copulative verb distinct from be and hence not accounted for by T11.

A general derived P-marker is provided below.



T12. Postnominal Modifier--Appositive Reduction Optional



Cond: [-spec] $\not\in$ 2,7; $\{2-4\}$ $\{7-10\}$ are dominated by the same NP

SC: 4 \longrightarrow $4^{\wedge} \wedge 7-10^{\wedge}, ; 5-10 \longrightarrow$ null

The reduction of the appositive clause in a more complete grammar would have a number of T-rules accounting for the various types of appositive constructions. However, this analysis shall concern itself only with the postnominal appositive NP derived from the predicative sentence. The ordering of T12 is such that the previous T-rules have been able to develop the NP to a considerable extent. Listed below are some strings derived by T12.

- (a) we, the committee,
- (b) John, the old man's friend,
- (c) the dog, a spaniel with black spots,
- (d) money, the root of all evil,
- (e) love, a precious gift,

Item (4) of the SD restricts the specification of the nouns to be postnominally modified. The first frame (at the top of the brackets) indicates that those nouns containing plus pronoun, minus singular and alpha first person may take part in this T-rule. This automatically means that the only possible determiners capable of occurring here are: we and you (cf. example (a)). In the second frame, the occurrence of nouns is restricted to that particular set which bears the feature minus pronoun; the appositive NP in this case cannot appear after a noun containing plus pronoun.

*it, the barrel;

*she, the girl,

In addition, this set must contain plus definite nouns which are specified either plus count or minus common (cf. examples (b) and (c)). If minus definite were allowed, ungrammatical strings would result.

*a man, a creature,

*oxen, beasts of burden,

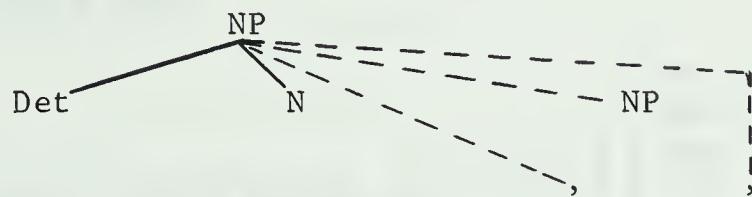
Minus definite, however, may occur with minus count nouns thus producing such strings as those examples (d) and (e). A further restriction upon the nouns in (4) is that only plus unique and plus specifying determiners may cooccur. This same condition also applies to the determiner (7) in the appositive clause.

*any horse, a fine animal,

*love, each precious gift,

In the SC, the appositive NP is attached postnominally to the dominating NP. The deletion nullifies the feature plus appositive and

thus removes the marker for the late intonational assignment. A comma shall be inserted on each side of the attached NP in order to preserve this information. Notice the derived P-marker.



T13. WH Introduction

SD: $x \left(\begin{array}{c} \{\text{that}\} \\ Q \\ 2 \end{array} \right) x \left[+\text{det} \right] (x \left[\begin{array}{c} +N \\ -\text{Pro} \\ \emptyset \\ 6 \end{array} \right] x) x$

Cond: $a \text{ if } \left\{ \begin{array}{c} [+R\text{el}] \\ [+A\text{pp}] \end{array} \right\} \subseteq 4$

SC: $4 \longrightarrow +\text{wh}$

Cond: (b) 4-7 are dominated by the same NP, 2-7 are dominated by the same S, $2 \neq \text{null}$, $3 \neq \underline{\text{do}}$

SC: $4 \longrightarrow +\text{wh}, 2 \longrightarrow \text{null}$

T14. WH Shift

SD: $x \left(\begin{array}{c} \{\text{do} \\ \text{be} \\ \text{have} \\ M \} \end{array} \right) x \left[\begin{array}{ccccc} \text{NP} & \text{Aux} & X & \text{NP} & X \end{array} \right] x$
 $3 \quad 4 \quad 5 \quad 6$

2

Cond: $a \text{ if } 2 \neq \text{null}, \text{ if } [+wh] \subseteq 3$

SC: $2 \longrightarrow \overset{\wedge}{3} 2; 3 \longrightarrow \text{null}$

Cond: $b \text{ if } [+wh] \not\subseteq 3, \text{ if } [+wh] \subseteq 6$

SC: $\overset{\wedge}{2} \overset{\wedge}{3} \longrightarrow \overset{\wedge}{6} \overset{\wedge}{2} \overset{\wedge}{3}; 6 \longrightarrow \text{null}$

Consider the following pairs of strings.

- (a) the man I Dick saw $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix} \longrightarrow$
the man who I saw
- (b) the man knows that Ø horses eat $\begin{bmatrix} +\text{det} \\ \text{it} \end{bmatrix} \begin{bmatrix} +\text{N} \\ +\text{Pro} \\ -\text{Abst.} \\ Ø \end{bmatrix} \longrightarrow$
the man knows what Ø horses eat
- (c) the man knows that the boy broke $\begin{bmatrix} +\text{det} \\ +\text{the} \end{bmatrix}$ big bottle \longrightarrow
the man knows which big bottle the boy broke
- (d) Ø is $\begin{bmatrix} +\text{det} \\ \text{the} \end{bmatrix}$ man going away
which man is going away
- (e) Ø did the man kill $\begin{bmatrix} +\text{det} \\ \text{he} \end{bmatrix} \begin{bmatrix} +\text{N} \\ +\text{Gen} \\ +\text{An} \\ Ø \end{bmatrix}$ snake \longrightarrow
whose snake did the man kill

A close examination of the above examples will reveal two important facts about the structure of the English language. First of all, the role of the determiner, it seems, is quite relevant to the introduction of the anaphoric forms who, which, what, etc. (wh-forms). In example (a), the determiner carries the necessary information leading to the introduction of who and which. Similarly, examples (c - e) illustrate that which and whose function as determiners. Finally,

example (b) suggests that since the noun (the dummy carrier) will be deleted, the determiner will be the most likely category to bear this information. As a result, T13 will predict into the determiner matrix a feature which will ultimately lead to assignment of the wh-forms. A second factor which is quite evident from the above examples is that these particular determiners and the remainder of their dominating NP experience a frontal shift. The shift is to the most forward part of the immediately dominating S. T14 will account for the shift of the wh-determiners. Thus, both of these rules are interdependent; the first supplies a wh-marker (the wh-feature) and the second executes a frontal shift upon the presence of this feature.

The SC of T13 operates on two conditions. Condition (a) scans the SD for any relativized determiner. If any such determiner contains either plus relative or appositive, it will obligatorily receive the feature plus wh. Later morpheme structure rules will change the phonological spelling to who or which depending on the relevant specification present in the matrix.

Condition (b) requires a much more complicated explanation. The first remark to be made refers to the condition as a whole; it is not an obligatory process as was the case in condition (a). The factive nominal and the interrogatives could be left as they are. However, if the option is to be taken, the structural analysis (2) must not equal null. The presence of either the factive morpheme or the Q-marker does not designate which determiner shall receive the wh-feature. Upon examining

the variables of the SD, it is clear that any NP (complete with all adjectives and postnominal modifiers) may be considered for the SC.²¹

In fact, the process is cyclical; the SC may take place more than once.

I know who made what with what where.

Who arrived with which person?

Another important factor in condition (b) is that of sentential dominance.

The prediction of the wh-feature will be restricted only to the embedded S of factive nominals and to any matrix sentence with the Q marker. The variable (3) is not equal to the dummy verb do.²² If such were not the condition, then the SC would perform the wh-introduction upon the subject. T14 would then produce a set of aberrant strings.

*Q does $\left[\begin{array}{c} +\text{det} \\ +\text{wh} \\ \text{the} \end{array} \right]$ man walk ---->

*which man does walk

*Q does $\left[\begin{array}{c} +\text{det} \\ +\text{wh} \\ \text{he} \end{array} \right]$ $\left[\begin{array}{c} +\text{N} \\ \text{Q} \end{array} \right]$ walk ---->

*who does walk

In concluding the discussion of the SD of T13, one last restriction must be mentioned. Notice the restricted specification of the noun (6); the noun may bear the feature minus pronoun, or plus pronoun if it also bears the dummy lexical entry Ø. When the minus pronoun specification occurs, such a string as the one below will result.

which big bottle

²¹Items (4 - 7) describe all the members of the one dominating NP.

²²This condition does not affect the presence of the factive nominal. In this case it would merely be a redundant statement.

The dummy carrier will result in the so-called interrogative pronouns who and what.²³ The SC of condition (b) not only introduces the wh-feature, but also deletes the factive morpheme that and the Q-marker. These have served their purpose as syntactic markers; they will not be required for future T-rules. It will be the wh-feature which will supply the marker for the following frontal shift (T14).

T14 is an obligatory transformation which will operate upon the presence of the wh-feature. It consists of two conditions (a) and (b). The first condition (a) requires that the SD contains the interrogative carriers of (2) and also the plus wh-feature in the determiner of the NP- subject (3). This SD will only concern matrix sentences which have undergone earlier question transformations. It should be noticed that do is present among the interrogative carriers. However, no problem arises here, since such an occurrence is blocked by T13. Its presence is justified in condition (b). Once these conditions have been satisfied, the SC will shift the NP- subject to the most foreward part of the sentence.

- (a) is [+wh] $\left[\begin{matrix} +N \\ \emptyset \end{matrix} \right] going ---->
who is going$
- (b) has [+wh] man gone ---->
which man has gone

²³It would be counterintuitive to neglect such a restriction; it is difficult to understand any justification for questioning a NP containing an exact referent.

(c) can [+wh] $\left[\begin{smallmatrix} +N \\ \emptyset \end{smallmatrix} \right]$ go ---->

who can go

Condition (b) does not provide a complete SD of the remaining strings containing the plus wh-feature. It excludes all those strings in which the plus wh-feature is contained in the NP-subjects. Since the NP-subject is at the front of the sentence (embedded or matrix) there is, of course, no need for the frontal shift. The presence of such a situation is apparent in the relative clauses, the factive nominal and the questions which do not have an interrogative carrier. Consider the examples below.

(a) the man $\left[\begin{smallmatrix} +det \\ +Rel \\ +wh \end{smallmatrix} \right]$ is sick ---->

the man who is sick

(b) I Dick know $\left[\begin{smallmatrix} +N \\ \emptyset \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +wh \\ the \end{smallmatrix} \right]$ man came ---->

I know which man came

(c) $\left[\begin{smallmatrix} +det \\ +wh \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +N \\ +An \\ \emptyset \end{smallmatrix} \right]$ came ---->

who came

The set of strings which are described in condition (b) contain the plus wh-feature somewhere in the Pred-Phrase. Condition (b) explicitly states that if plus wh is not contained in (3), then it must be contained in the NP (6). The interrogative carriers may or may not be present in the questions. Thus when the SC operates, the NP concerned will be shifted to the front of the immediately dominating S. If more than one wh-determiner is present, the shift will be automatically blocked after

its first application; the condition will no longer be satisfied. The example at the beginning of the discussion on T13 will illustrate the wh-shift of T14.

T15. Reflexization

SD: X [+det] X $\left[\begin{matrix} +N \\ +An \end{matrix} \right]$ X ([+V]) X [+det][+N] X
2 3 4 5 6 7 8 9

Cond: 2-9 are dominated by the same S, 2-4 are dominated by the same NP and $\in [N; S]$, 4 = 9, 8^9 are the only members of an NP which does not occur in a postnominal modifier and which $\in [VP, S]$

SC: 8 \longrightarrow +Reflex, 9 \longrightarrow +Pro

The formulation of T16 has offered numerous problems which have yet to be adequately solved. Although the solution presented here accounts for a large number of reflexive constructions, the fact remains that not all of the generalities concerning this process have been captured. The following discussion will illustrate the operation of T15 as well as suggest certain problems which must be overcome.

Reflexivization is an obligatory transformation operating on the identity criterion. In addition to this criterion, certain other conditions must be provided in order to control the occurrence of the two members satisfying the identity. For example, noun (4) must function as the subject of the sentence. The sentence concerned here applies only to the constituents under the same dominating S. Thus the SD may describe either a matrix or constituent sentence. The second noun (9) is restricted to the nominal elements under the dominance of VP. A further restriction on (9) is that it cannot be a member of any

postnominal modifier. Certain postnominal modifiers may enter reflexivization, but the SD must apply to a dominance under a different S. If such a restriction were not imposed, unwanted constructions would result.

*I keep it near myself

I keep it near me

As for the exact specification of these two nouns, it is quite clear from the examples given that only plus animate nouns can be considered in the identity criterion. The condition of identity, however, seems to be somewhat too powerful. Consider the examples below.

(a) I Dick hurt I Dick ---->

I hurt myself

(b) the man hit the man ---->

the man hit himself

(c) *the man hit the man

There should be no reason why (c) cannot be generated directly without entering T16 since it is a perfectly grammatical string. It must somehow avoid the identity criterion. The use of reference indices derived in the subcategorization rules will preserve the identity criterion and yet allow for the required distinction in the third example (cf. Chomsky, 1965:145). Such a scheme would be mandatory in a more comprehensive grammar.

Item (6), the verb in the SD, does not register any limitation on the type of verbs allowed in this frame. Transitive verbs seem to be quite unrestricted in occurrence while intransitive verbs display an irregularity in this regard. A large number of intransitive verbs do occur freely. However, a small group of these verbs displays a distinct

peculiarity in that they may occur only with a reflexive object. A non-reflexive object would produce ungrammatical strings (cf. example (b) and (c)). Lees and Klima have pointed out this phenomenon; but no exact formulation has been provided (1963:17-28).

- (a) I Dick was talking to I Dick ----→
I was talking to myself
- (b) he John behaves he John ----→
he behaves himself
- (c) *he John behaves Ø Bill ----→
*he behaves Bill

The third class of verbs capable of entering frame (6) is the copulative verb. In this case only one particular verb (become) is allowed with an NP which may satisfy the identity criterion. Another verb occurring in a similar manner with an NP is the forthcoming copula be (6 = null). Reflexivization may take place in predicative sentences.

- (a) I Dick became I Dick again ----→
I became myself again
- (b) he Bill is he Bill today ----→
he is himself today

With all conditions satisfied the SC will add the feature plus reflexive to the determiner (8) and the feature pronoun to the noun (9). Morpheme structure rules will attach the morpheme self behind the determiner and later rules will adjust the appropriate pronominal form.²⁴

²⁴The facts presented in this statement are merely an informal sketch of what might happen in later rules.

A late general deletion rule will erase the plus pronoun matrix.

T16. Demonstrative Pronominalization Optional

SD: X $\left[\begin{smallmatrix} +\text{det} \\ +\text{Dem} \end{smallmatrix} \right]$ [+] X
2 3

Cond: [+An] $\not\in$ 3

SC: 3 \longrightarrow +Pro

T16 accounts for a rather strange fact concerning plus demonstrative determiners and plus animate nouns. The lexicon glosses the demonstrative determiners with the selectional feature $[+ _ \left[\begin{smallmatrix} +N \\ -\text{Pro} \end{smallmatrix} \right]]$. Such a restriction is necessary in order to avoid a complication in the selectional feature. Listed below are both grammatical and ungrammatical strings.

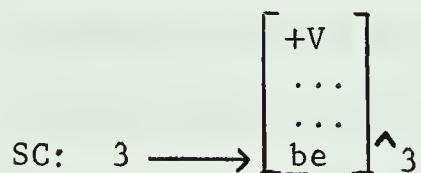
- (a) this pen writes well \longrightarrow
this writes well
- (b) these oranges are fresh \longrightarrow
these are fresh
- (c) this boy likes candy \longrightarrow
*this likes candy
- (d) these horses eat hay \longrightarrow
*these eat hay

If alpha pronoun were permissible in the selectional restriction, example (a) and (b) would still be possible; but (c) and (d) would also result. It is clear that plus pronoun and plus animate nouns may not cooccur with the demonstrative determiners (cf. condition). The simplest solution is to provide a T-rule which will perform a demonstrative pronominalization.

When the SC is applied the feature plus pronoun will be added to the minus pronoun matrix which will then be erased by a late deletion rule. If the option has not been taken, the strings will remain as they were when generated by the base.

T17. Copula Insertion

SD: X Aux Pred X
2 3



As stated in the discussion of base Rule (3), it is a matter of simplicity and descriptive adequacy to consider the copula be as a "dummy carrier" in the surface structure. It thus follows, on the basis of this premise, that the copula must be introduced somewhere in an intermediate structure. There is only one unique place where it may be located; between the Aux and Pred (cf. SD). To be more precise, the copula will be dominated by the same node which dominates all verbs. The SC will attach to the major category NP a completely specified matrix containing the distinctive syntactic feature plus verb and the spelling be. As for the relative ordering in a complete grammar, T17 must occur before the verb agreement rule which in turn must take place before the plus pronoun matrices.

T18. Block from the Deletion Rule

SD: X $\left[\begin{array}{c} +\text{det} \\ -\text{Dem} \end{array} \right]$ $(\left[\begin{array}{c} +\text{Adj} \\ \alpha\text{Card} \end{array} \right])$ $(\left[\begin{array}{c} +\text{Adj} \\ \beta\text{Card} \end{array} \right])$ X $\left[\begin{array}{c} +N \\ +\text{Pro} \end{array} \right]$ X
2 3 4 5 6

Cond: (a) 2-6 are dominated by the same NP, $[+Card] \subseteq 4$, 5 = null

SC: 6 \longrightarrow -Pro

Cond: b 2-6 are dominated by the same NP, elsewhere

SC: 6 \longrightarrow -Pro

T18 attempts to rectify an unavoidable situation which arises when the minus demonstrative determiners we and you cooccur with the plus pronoun matrix. When the plus pronoun matrix is deleted from these strings, certain ungrammatical constructions result. Illustrated below is the first set of such strings.

(a) you first five young $\left[\begin{smallmatrix} +Pro \\ men \end{smallmatrix} \right]$ \longrightarrow

*you first five young²⁵

(b) you five young $\left[\begin{smallmatrix} +Pro \\ men \end{smallmatrix} \right]$ \longrightarrow

*you five young

(c) you five first $\left[\begin{smallmatrix} +Pro \\ men \end{smallmatrix} \right]$ \longrightarrow

*you five first

(d) you first $\left[\begin{smallmatrix} +Pro \\ men \end{smallmatrix} \right]$ \longrightarrow

*you first

These examples clearly show that the deletion of the plus pronoun matrix is undesirable for these strings. Another set of strings however illustrates that the deletion could be optional.

²⁵The members of this set could also occur with the general pro-nominal noun one.

you first five young ones

The exact source of this form is difficult to determine. It could result either from the base as a lexical entry or from a derivational process in the transformational component. The form one could also account for the derivation of the indefinite pronouns somebody, anything, etc.

- (a) you first five men you first five
- (b) you five men you five
- (c) you men you

Condition (a) describes the optional set which does not cooccur with any prenominal adjectives ($5 = \text{null}$). Numeral adjectives, if present, must appear in the sequence of an optional minus cardinal adjective followed by a plus cardinal adjective. In condition (b), the obligatory set may or may not have the prenominal adjectives. If they are not present, no restrictions on the sequence of numeral adjectives are required.

The simplest means of preventing the deletion rule is to change the specification of the noun (6); it should no longer bear the feature plus pronoun. The SC will therefore predict in the feature minus pronoun. This feature will (by convention) cancel the feature plus pronoun. With this situation now remedied, all plus pronoun matrices may be deleted without deriving any ungrammatical strings.

T19. Deletion of Plus Pronoun Matrices

$$\text{SD: } X \begin{bmatrix} +N \\ +\text{Pro} \end{bmatrix} X$$

2

$$\text{SC: } 2 \longrightarrow \text{null}$$

The final transformation in the analysis of the English NP is the late deletion rule which erases all plus pronoun matrices. In a complete grammar, T19 would appear very late with the other general deletion rules. This would mean that numerous transformations could occur between T18 and T19. One such possible rule might account for the

derivation of the indefinite pronouns. It seems quite possible that the deletion could explain the so-called postnominal modifiers following these pronouns. The deleted noun could have been present between the prenominal and postnominal modifiers which are derived in this analysis.

something big in the garden

As for the deletions concerned with this analysis, the examples below can sufficiently explain the function of T19.

(a) I $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{Dick}} \end{smallmatrix} \right] went to town ---->$

I went to town

(b) the man wants some $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{milk}} \end{smallmatrix} \right]$ ---->

the man wants some

(c) $\left[\begin{smallmatrix} +\text{det} \\ +\text{wh} \\ +\text{Gen} \\ \underline{\text{he}} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{N} \\ +\text{Gen} \\ \emptyset \end{smallmatrix} \right]$ dog ---->

whose dog

(d) we first five $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{boys}} \end{smallmatrix} \right]$ ---->

we first five

One controversial problem arising from this transformation is that the deletion is infinitely ambiguous. Although the presence of the pronominal form in the determiner is sufficient to provide a recoverable hierarchic sequence, the lexical entry and its inherent specification are in themselves irrecoverable. Such a problem could be avoided by inserting pronominal lexical items into plus noun matrices. However, it seems strange that pronouns should be denied their underlying referential

function. In actual linguistic performance, pronouns do become ambiguous in their attempt to reduce redundant information.

The analysis of the English NP has thus been concluded. Chapter II has described the given methodology by applying it directly to the actual analysis. All rules which have been discussed in detail throughout the chapter may be found in the grammar provided in Appendix A. Also included within the base component, is a sample lexicon illustrating the lexical subcategories of English. In the following chapter the same methodology will analyze the Russian NP.

CHAPTER III

THE ANALYSIS OF THE RUSSIAN NOUN PHRASE

3.0 In this chapter, the Russian NP shall be treated by the same generative model. All rules and conventions of the base and transformational component will function as previously described in Chapter II. The output of this model will provide ample data for the contrastive conclusions in the final chapter. Discussion in this present chapter shall be confined to the rules of the Russian grammar as well as to obvious issues of contrast. Hence, Chapter III shall begin with a consideration of the branching rules in the base component.

3.1 Upon referring to Appendix A and B, one will immediately notice the apparent similarity between the branching rules of the Russian NP and those of the English NP. As will be seen in the following chapter, important claims about language may result from this contrast. For the time being, however, this section shall consider those rules which display significant deviations from the previous analysis as well as any other rules meriting further comment.

Rule (3) has no changes in the expansion of VP; all the notional categories have remained unchanged and the copula is absent from the deep structure. The late copula insertion operates even more conveniently for Russian since only the past tense requires the presence of the copula. A further look at these major categories will bring to mind their purpose

already mentioned in the English grammar. They serve as a means of subcategorization for verbs and also as a means of adverbialization for certain nominal elements. Another function of these categories is the introduction of case. In Rule (5), it is seen that these and other categories expand into prepositional phrases. The lexical insertion of the preposition would be contingent on a higher node convention whereby certain prepositions would be restricted to the dominance of particular categories. Thus, if the category Dir (direction) were present, a general T-rule would first interpret the category as requiring the accusative case and the SC would then attach the case as a grammatical constituent under the dominance of Dir. A more specific T-rule would also analyze the matrix **[+Prep]** in the event that the preposition require a different case. If so, the rule would change the case to the one specified in the matrix. This explanation of case introduction is merely a sketched outline of how this problem could be handled. The analysis shall not consider or develop case any further.¹ It should only be mentioned that case is not a matter of deep structure; the transformations concerned are actually very late rules acting on intermediate structures.

¹ Although case is derived from the categories expanding into a prepositional phrase, the case introduction for the NP-subject and object is not accounted for. This analysis only outlines the procedure, so no problems of application will arise in the grammar. Fillmore has suggested that these nominal elements are also prepositional phrases which use either a dummy or lexical preposition (1966:20-33). In more recent unpublished material he has devised a system of one category for one case. His system suggests that too many categories have been included in this grammar.

The expansion of Pred (Rule 4) introduces the very same elements as the corresponding rule in English. In fact, this rule even allows for a somewhat simpler formulation because of the convenient ordering of Num and Adj.

$$4. \text{ Pred} \longrightarrow \left\{ \begin{array}{l} \text{NP} \\ \text{Loc} \\ \text{Pos} \\ \left(\left\{ \text{Ints} \right\} \right) \text{ Adj} \\ \left(\left\{ \text{Num} \right\} \right) \end{array} \right\}$$

The notional category Pos represents the same notion of possession, except in this case the concept provides a more far-reaching application than before. A large number of genitive constructions will ultimately derive from this category. T-rules will reduce the predicative relative clauses containing this predicator into prenominal genitive determiners and postnominal genitive NP's. By virtue of Rule (5) Pos is realized as a prepositional phrase demanding the genitive preposition u. By the time these reductions have been performed, only the gentivized NP's will remain. The examples below illustrate these NP's which have been derived from the category Pos.

moja mat'

Ø stado korov

Ø pero toego brata

Ø kniga u menja²

Another category meriting further comment is the numeral marker Num.

²The transliteration of these examples avoids the setting up of the proper morphophonemes. It will be assumed that inflections and the final phonetic representation have been derived by rules not described in this grammar.

Its obvious function in this grammar is to provide a mnemonic device in the deep structure; that is, it allows for the distinction of ordinal and cardinal numerals in the subcategorization rules. As explained previously, Num bears a conceptual notion of number and rank. In fact, it will even account for a certain type of comparative construction in both languages. The analytic nature of Num is apparent in the examples below.

on kurit bol'se (v kolicestve) papirosy čem ja
he smokes more (in number) cigarettes than I

In a more complete grammar, ordinal numerals would not require this marker, because these would be derived from the marked class of cardinal numerals. That is to say, some optional element associated with Num would mark the obligatory derivation of the ordinal adjectives. However, in this grammar there will exist both the ordinal and cardinal markers realized by the category Num. The ordinal marker will be obligatorily deleted from the deep structure by means of a late deletion rule.

čelovek v porjadke pervyj ---->
čelovek pervyj

The remaining branching rules of the base component display no significant deviations from those of the English grammar. Rule (8) might suggest an irregularity in the treatment of aspect. One possible reformulation compromising between these two solutions is to consider aspect as a feature of subcategorization in the verbs. Such a speculation, however, is a matter somewhat beyond the scope of the NP analysis.

The final three branching rules suggest that the deep structures of the English and Russian NP's are identical.

$$9. \text{ NP} \longrightarrow \text{Det}^{\wedge} \text{N} (\# \text{ S } \#)$$

$$10. \text{ Det} \longrightarrow (\text{Prart}) \text{ det} (\text{Adj})$$

$$11. \text{ X} \longrightarrow \text{CS} \quad \text{where X} = \begin{Bmatrix} \text{V, Adj, N, det,} \\ \text{Prart, Ints} \end{Bmatrix}$$

There appears to be no apparent difference in any of the NP's immediate constituents. All the lexical categories of NP are converted into matrices by virtue of Rule (11) and have thus been prepared for the subcategorizations rules in the subsequent section.

3.2 The subcategorization rules will analyze the same lexical categories as in English; these are N, Adj, and det. Rules (12 - 21) will consider the lexical category N.

$$12. \left[+\text{N} \right] \longrightarrow \begin{bmatrix} +\text{Pro} \\ -\text{Com} \end{bmatrix}$$

$$13. \left[+\text{Com} \right] \longrightarrow \begin{bmatrix} +\text{sg} \\ -\text{cnt} \end{bmatrix}$$

$$14. \left[+\text{sg} \right] \longrightarrow \left[+\text{masc} \right]$$

$$15. \left[-\text{masc} \right] \longrightarrow \left[+\text{fem} \right]$$

$$16. \left\{ \begin{array}{l} \left[+\text{cnt} \right] \\ \left[-\text{Com} \right] \end{array} \right\} \longrightarrow \left[+\text{An} \right]$$

$$17. \left[+\text{An} \right] \longrightarrow \left[+\text{hum} \right]$$

$$18. \left[+\text{hum} \atop +\text{Pro} \right] \longrightarrow \left[+3\text{p} \right]$$

$$19. \left[-3\text{p} \right] \longrightarrow \left[+1\text{p} \right]$$

20. $\begin{bmatrix} \text{-An} \\ \text{+cnt} \end{bmatrix} \longrightarrow \begin{bmatrix} \text{+Quan} \end{bmatrix}$
21. $\begin{bmatrix} \text{-cnt} \end{bmatrix} \longrightarrow \left\{ \begin{array}{l} \begin{bmatrix} \text{+Abst} \end{bmatrix} / \begin{bmatrix} \text{+sg} \end{bmatrix} \\ \begin{bmatrix} \text{-Abst} \end{bmatrix} / \text{elsewhere} \end{array} \right\}$

The first of these rules (Rule (12)) adds to the given matrix

$[+N]$ the features of alpha pronoun and common. All nouns in Russian may cooccur (in the deep structure) with a referential pronominal category. If a pronominal category is to appear, the feature plus pronoun must be present in the noun. This feature will facilitate the introduction of a pronominal determiner, while the oppositely specified feature requires a nonpronominal determiner. The second feature (plus or minus common) supports a previous claim that all languages have proper names. Minus common nouns are distinguished by the fact that when bearing the feature minus pronoun, they invariably require the zero determiner \emptyset .³

my prisli v \emptyset moskvu

ja znakom s \emptyset ivanom

Plus common nouns will in turn receive the grammatical features of countability and number (cf. Rule (13)). Countability distinguishes between those nouns which may be the subject of numeral predators and those which may not. These adjectives may optionally be embedded into a position dominated by the category Det.

\emptyset odin stol

³A very detailed treatment of minus common nouns could result in an honorific system of determiners. If this is so, then this distinction becomes invalid. Such honorific determiners might appear in the following constructions.

grazdanin nagul'nov
gospodin ivanov

eti tri kuricy

*Ø dva gorja

*Ø šest' neftej

As for the feature of plus or minus singular, most plus common nouns may contain either specification. Those that do not will be inherently marked for whichever specification they require.

Rule (14) presents an interesting relationship between gender and number. Gender must be a marked feature in the noun so as to allow agreement with verbs in the past tense and with adjectives. However, gender is not required when the noun contains minus singular. In other words, gender will only be derived from plus singular nouns.

ja byl na dvore

ona byla na dvore

oni byli na dvore

eta krasivaja devuška

eti krasivye devuški

eti dobrye ljudi

Thus any plus common noun⁴ bearing the feature plus singular will subcategorize into the grammatical features of plus or minus masculine.

Rule (15) further develops minus masculine into the feminine (plus feminine) and neuter (minus feminine) genders.

A cross-classification of subcategories is present in Rule (16).

⁴Minus common nouns will have both the features of gender and number inherently specified. A more adequate solution would somehow derive these features by the use of subcategorization rules.

Both plus count and minus common nouns are capable of subcategorizing into the feature of animateness. As a result of this distinction, verbs may establish selectional restrictions controlling their lexical insertion according to the specification of their subjects.

<u>mal'čik</u>	
<u>ivan</u>	
<u>*mašina</u>	
<u>*kanada</u>	

kušaet xleb

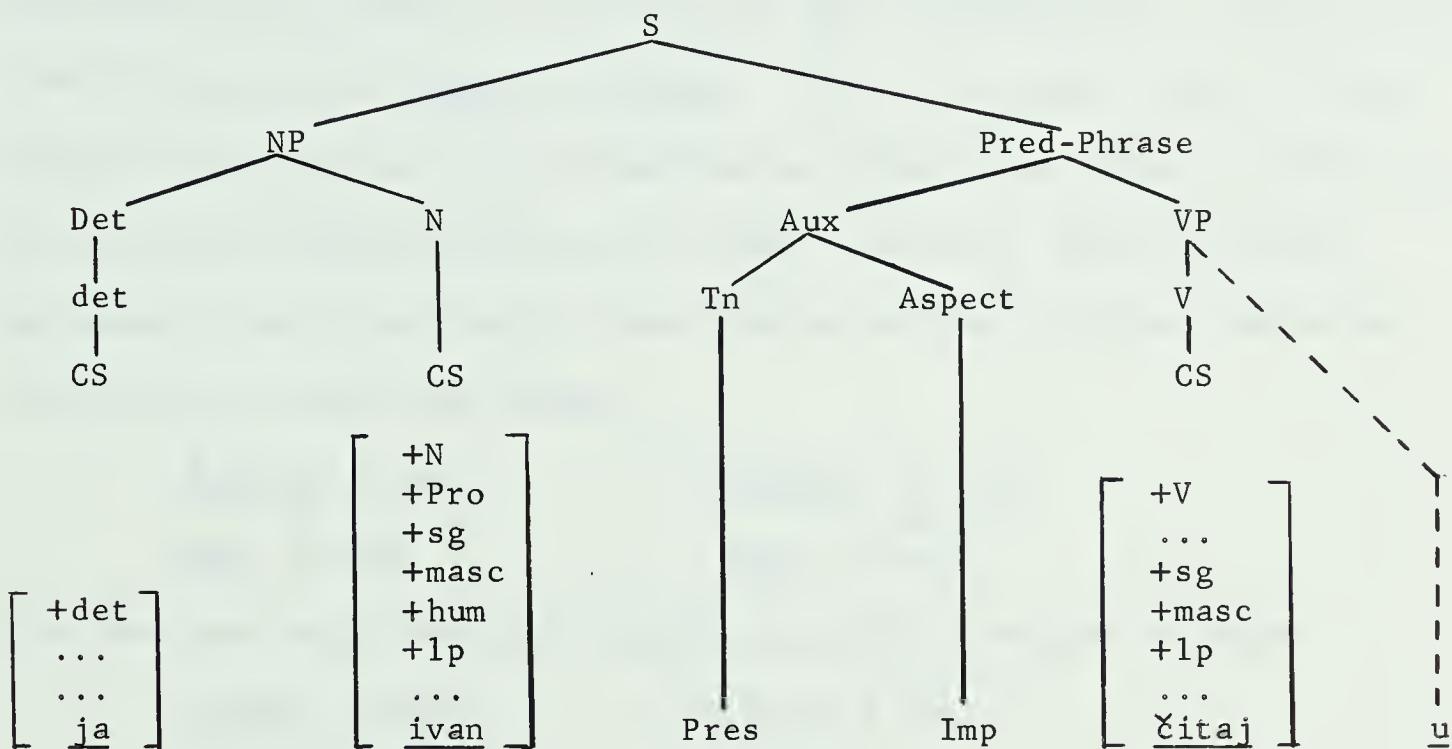
In late morpheme structure rules, the feature of plus animate will be necessary in assigning the appropriate inflection to those nouns requiring the genitive ending in the accusative case. This same subcategory also makes a distinction in the feature of plus or minus human (cf. Rule (17)). Verbs and adjectives will likewise rely on this feature for selectional information.

Rule (18) continues the subcategorization of the matrix containing plus pronoun and plus human. To this matrix is added the feature of person (plus or minus third person). Minus third person develops further into the feature denoting first and second person (cf. Rule (19)). Thus, the most immediate result of this subcategorization is the introduction of the personal pronouns in the determiner. In addition to this selectional function, person proves to be very instrumental in verb agreement. By means of a relatively late transformation, the features of person, number and gender will be added to the matrix [+V].⁵ Morpheme structure rules will

⁵All minus pronoun and nonhuman matrices will automatically register third person agreement.

then interpret this matrix and will introduce the proper inflection.

The operation of these two transformations is apparent in the following derived P-marker. The scheme presented is merely an outlined sketch of how the features of number, gender and person might function in a complete grammar.



Another complex matrix undergoing subcategorization is the one in Rule (20); it contains the features of minus animate and plus count. The minus common, minus animate nouns derived by Rule (16) have become terminal subcategories while the present matrix may subcategorize into the features of plus or minus quantity. Plus quantity nouns are those nouns denoting some aspect of measurement (e.g. funt, stado). They often combine with mass nouns in such constructions as the following:

Ø dva funta tabaka
eto bol'soe stado korov

In a complete grammar, both the plus and minus quantity subcategories

would be nonterminal; they would continue further into their ultimate, terminal subcategories.

The final subcategory of nouns to be considered is the minus count matrix. Rule (21) makes the distinction between plus and minus abstract nouns. The subcategory of minus abstract refers to those nouns which are capable of entering the above constructions containing plus quantity nouns (cf. tabak and korova). To be more exact, minus abstract nouns are mass nouns. An interesting fact about these nouns is that they can only have one specification of number. That is, some nouns will necessarily have the inherent specification of plus singular, while the remainder are oppositely marked.

<u>sokolad</u> [+sg]	* <u>sokolady</u> [-sg]
* <u>stan</u> [+sg]	<u>stany</u> [-sg]

Plus abstract nouns are also invariably specified as plus singular.

<u>ljubov'</u> [+sg]	* <u>ljubvi</u> [-sg]
<u>gore</u> [+sg]	* <u>gorja</u> [-sg]

As was explained in the English analysis, numerous counter-examples to the above lexical subcategories can be given. For example, a plus abstract noun may seem to function like a plus count, plus human noun. This problem was resolved for English by the explanation that a particular lexical entry appearing in more than one distinct context would be so specified in the appropriate places in the lexicon. A similar resolution also applies in Russian.

<u>Ø gorjacaja</u> [+Abst <u>ljubov'</u>]	<u>moja pervaja</u> [+cnt +An <u>ljubov'</u>]
--	---

$\emptyset \underline{\text{stakan}}$	$\begin{bmatrix} \text{-Abst} \\ \text{vody} \end{bmatrix}$	$\emptyset \underline{\text{territorial'nye}}$	$\begin{bmatrix} +\text{cnt} \\ -\text{Quan} \\ \text{vody} \end{bmatrix}$
$\emptyset \underline{\text{pjat'}}$	$\begin{bmatrix} +\text{cnt} \\ \text{korov} \end{bmatrix}$	$\emptyset \underline{\text{stado}}$	$\begin{bmatrix} -\text{Abst} \\ \text{korov} \end{bmatrix}$

3.20 The next five subcategorization rules develop the lexical category

Adj into its subcategories. Unlike the category N, Adj may appear under two different domains in the deep structure. The first is the intensifying adjective under the dominance of Det and the second is the predicative adjective dominated by Pred. Predicative adjectives may optionally be shifted to a prenominal position by relatively early transformations.

Consider the following rules.

22. $[+\text{Adj}] \longrightarrow \left\{ \begin{array}{l} [+Int] / _N \\ [-Int] / \text{elsewhere} \end{array} \right\}$
23. $[-\text{Int}] \longrightarrow \left\{ \begin{array}{l} [+Num] / \text{Num}_ \\ [-Num] / \text{elsewhere} \end{array} \right\}$
24. $[+\text{Num}] \longrightarrow [+Card]$
25. $[+Card] \longrightarrow [+Coll]$
26. $[-\text{Num}] \longrightarrow \left\{ \begin{array}{l} [+Deg] / (\text{Ints}) _ \\ [-Deg] / \text{elsewhere} \end{array} \right\}$

Rule (22) distinguishes the intensifying adjective from the predicative adjectives. The intensifying adjective is dominated by Det and may only be inserted upon a cooccurrence with the features minus pronoun and plus count in the noun-head. It is apparent from the examples below that its occurrence is restricted to an attributive position.

v etom samom meste

*v etom meste kotoroe samoē

Minus intensifying adjectives which are all dominated by Pred in the deep structure may further subcategorize into the feature plus or minus numeral. Numeral adjectives are always distinguished in the deep structure by occurring immediately after the category Num. These adjectives may also subdivide into more specific subcategories; that is plus or minus cardinal (cf. Rule (24)). Minus cardinal adjectives are a terminal subcategory referring to the so-called ordinal numerals such as peryj, pjatyj, etc. The plus cardinal adjectives are assigned one further distinction in that some of these bear a notion of collectivity (mnogo, dvoe, etc.) while others refer directly to the usual cardinal numerals (pjat', sto, etc.).⁶ Rule (25) accounts for this fact by assigning the specification of plus or minus collective to the plus cardinal matrix.

The final subcategorization of adjectives concerns the minus numeral subcategory. Plus degree adjectives are those adjectives occurring in that particular slot which may optionally be preceded by Ints. When certain intensifiers and contexts occur, a number of these adjectives will undergo a set of morpheme structure rules. These rules will perform such derivational processes as the ones illustrated below.

bolee umnyj ----> umnee

samyj umnyj ----> umnejsij

umnyj ----> umjon

Further subcategorization would be necessary in order to account for all

⁶ A complete grammar would make this distinction more valid on the grounds that the minus collective adjectives would require reference indices and that the plus collective adjectives would not. The English numerals would also share the same distinction on the same grounds.

idiosyncratic behavior of plus degree adjectives; but for the present grammar, plus degree adjectives will remain a terminal subcategory. The second choice of Rule (26) are the minus degree adjectives which necessarily occur without the category Ints. In other words this subcategory may never enter any detree of comparison.

*Ø ^vocen' derev jannyj stol

*Ø ^vzeleznee orudie

It should be noted that in a comprehensive grammar, minus degree adjectives would not be derived from subcategorization rules. They would originate from the predicative category Pos which must contain a mass noun (minus abstract). Certain transformations would perform the necessary derivational processes. Below is a sketch of what might take place.

Ø stol iz dereva ---->

Ø stol derev jannyj ---->

Ø derev jannyj stol

3.21 Rules (27 - 30) are the final group of subcategorization rules; they consider the lexical category det. The determiner system here attempts to simulate the English restrictive and non-restrictive scheme. Although there does exist some correlation between determiners and relativization, there seems to be a more crucial factor present in the feature of pronoun in the noun-head. The distinctions made in the following subcategorizations will concern both these factors of pronouns and relative clauses. It is difficult to assess the descriptive adequacy of such a solution; but it does, however, present a problem for further enquiry. Consider the

following subcategories of det.

27. $[+det] \longrightarrow [+\underline{\text{unique}}]$
28. $[-\underline{\text{unique}}] \longrightarrow [-\underline{\text{spec}}]$
29. $[-\underline{\text{spec}}] \longrightarrow [+def]$
30. $[+spec] \longrightarrow [+Dem]$

In Rule (27), the feature of uniqueness is added to the given matrix. Plus unique determiners refer to those pronominal forms (such as ja, ty, my, vy, and on) which are selectionally restricted to the presence of the feature plus pronoun contained in the noun-head. They are also distinguished by the fact that they do not cooccur with relative clauses.

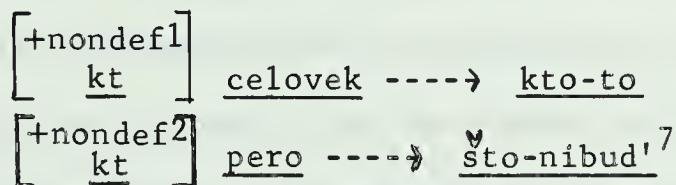
*on, kotoryj xodit medlenno,

*ja, kotoryj xotel spat',

The minus unique determiners develop into the intermediate subcategories of plus or minus specifying. Rule (29) then adds to the minus specifying matrix the feature of definiteness. No selectional restraints analyzing the pronoun feature are specified in the plus definite determiners; that is they may cooccur with a plus or minus proun matrix. As a result, plus definite determiners may function pronominally or otherwise.

- (a) Ø ivan pogovoril s každym $\left[\begin{smallmatrix} -\text{Pro} \\ \checkmark \text{celovekom} \end{smallmatrix} \right]$
- (b) Ø ivan pogovoril s každym $\left[\begin{smallmatrix} +\text{Pro} \\ \checkmark \text{celovekom} \end{smallmatrix} \right] \dashrightarrow$
Ø ivan pogovoril s každym

Minus definite determiners on the other hand are selectionally restricted to one pronominal specification (i.e. [+__ [+Pro]]). In the lexicon only one item is glossed. This form (kt) is a morphophonemic representation of the determiners kto and sto which are derived according to the specification of the noun-head. A second obligatory derivational process is required in order to facilitate the introduction of the indefinite morphemes -to, -nibud', -libo, -koe, etc. The appropriate morpheme must be introduced upon the exact specification in the determiner. Such specification should probably derive from the subcategory of minus definite. It would seem most logical that the subcategorization should account for degrees of nondefiniteness. This grammar shall not provide these subcategorization rules. However, the examples below briefly suggest how this problem might be handled.



As for the restrictive cooccurrence of both plus and minus definite determiners with relative clauses, only those forms analyzing minus pronoun matrices will be allowed.

The subcategorization of the plus specifying determiners results in a distinction of a plus or minus demonstrative specification. Plus demonstrative determiners (such as etot and tot) display a somewhat different restrictive behavior in the presence of a plus pronoun matrix.

⁷ Numerous other problems concern the cooccurrence restrictions of the indefinite morphemes. A workable solution involving their general introduction has yet to be discovered.

The determiner tot⁸ in particular may cooccur with plus or minus pronoun matrices and with relative clauses as well.

ja prinjos to, što ty prosil,⁹
te, kotorye prišli, xoteli pokusat'
tot čelovek, kotoryj pjet mnogo,

In the negative specification of the demonstrative determiner, only one lexical entry is possible; this is the zero determiner (Ø). Its statement of cooccurrence analyzes minus pronoun matrices and thus allows for the occurrence of relative clauses.

Ø ivan, u kotorogo bylo pero,
Ø čelovek, kotoryj byl u nas,

Hence, the subcategorization rules have established the lexical subcategories of N, Adj, and det. A number of these subcategories will develop their own selectional restrictions in the subsequent section.

3.3 The selectional rules here shall be limited to a small number of lexical categories. It would be necessary in a more comprehensive grammar, however, to provide selectional restrictions for all non-selectionally dominant lexical categories. Consequently, nouns do not contain selectional features; and all other lexical categories are

⁸A further distinction is required between tot and etot. One possibility would be to assign such a specification as plus or minus proximity.

⁹Under the appropriate specification of plus pronoun and plus human or nonhuman kotoryj will become kto or što respectively.

dependent directly or indirectly on their cooccurrence with nouns. Before any evaluation of this system can be given, alternate solutions employing different selectionally dominant categories would have to be formulated.

The present grammar provides the following selectional rules.

31. $\left\{ \begin{array}{l} [+Prart] \\ [+Int] \end{array} \right\} \longrightarrow CS / (_) [\infty] (_) [\beta] \text{ where } \infty = +det$
 $\beta = +N$
32. $[+Num] \longrightarrow CS / [\infty] ooo \quad \text{where } \infty = +N$
33. $[+det] \longrightarrow _ooo [\infty] \quad \text{where } \infty = +N$

Rule (31) assigns a selectional feature to the plus prearticle and plus intensifying matrices. Both the resulting selectional features will analyze the specification of the determiner and noun-head. The first matrix (plus prearticle) has not undergone the subcategorization rules; it enters directly from base Rule (11) into the present selectional rule. In the lexicon, the prearticle ves' is assigned the following cooccurrence restriction: $[+ _ [+spec] [+com]]$. Such a specification limits this lexical entry to those NP's containing plus specifying determiners and plus common nouns. The examples below justify the given selectional analysis.

vse Ø krasivye devuski
on vypil vsju etu vodu
*ves' vsjakij čelovek
*vsja Ø liza prišla

The plus intensifying adjective analyzes an almost identical specification in its lexical entry samyj ($[+ [+spec] _ [+cnt]]$). In this case, the required specification of the noun is restricted to plus count.

Consider these examples.

eta samaja kniga

v Ø samom dele

*eto samoe gore

*Ø samyj šokolad

The selectional specification of the numeral adjectives may be examined in the sample lexicon of Appendix B. Of the three subcategories listed, only the minus collective group shall receive a brief explanation; the remaining two groups contain specifications which are quite obvious and self-explanatory. Minus collective adjectives are specified as follows.

odin [+ $\begin{bmatrix} +\text{cnt} \\ +\text{sg} \end{bmatrix}$ ooo]

dva [+ $\begin{bmatrix} +\text{cnt} \\ +\text{sg} \end{bmatrix}$ ooo, +plagr]

pjat' [+ $\begin{bmatrix} +\text{cnt} \\ -\text{sg} \end{bmatrix}$ ooo]

Rule (32) assigns the analysis to the noun-subject of the plus numeral predicates. Both the numerals odin and dva require the same specification of a singular, plus count noun. The feature of plus singular occurring with dva tri and četyre. But in order to account for the plural adjectival and verb agreement, an inherent feature of plus plural agreement is provided. Pjat' and the remaining minus collective numerals will cooccur with minus singular, plus count nouns. A transformation will introduce the genitive case into the NP after the numerals have been embedded prenominally.

Ø odin čelovek

Ø dva dobrye čeloveka prišli

Ø pjat' ljudej

The final selectional rule involves all the determiners which must analyze the specification of the noun-head. As a result, the determiners of Russian and English are introduced only upon the exact specification in the plus noun matrices. One lexical item of the plus unique determiners is noteworthy. Consider the selectional feature of the determiner on.

on $\left[+ _ \begin{bmatrix} [+Pro] \\ (+3p) \end{bmatrix} \right]$.

If the optionally specified feature of plus third person has been derived, the noun-head may contain either plus or minus singular. The minus singular feature will allow the derivation of oni. A combination of the feature plus singular and the feature of inherent gender in the noun also results in the derived forms of onØ, ona, and ono whether plus third person is present or not.

3.4 This section shall briefly deal with the specification of gender and class in the lexicon. As shown below, gender and class are specified for all nouns.

5. $[+N, +cnt, +hum]$

a $[+masc]$

(1) $[+\emptyset CL]$

brat
muz
korol'
otec
mal'cik

(2) $[+1CL]$

pjanica
mužčina
junoša
voevoda
deduška

b $[+Fem]$

(1) $[+1CL]$

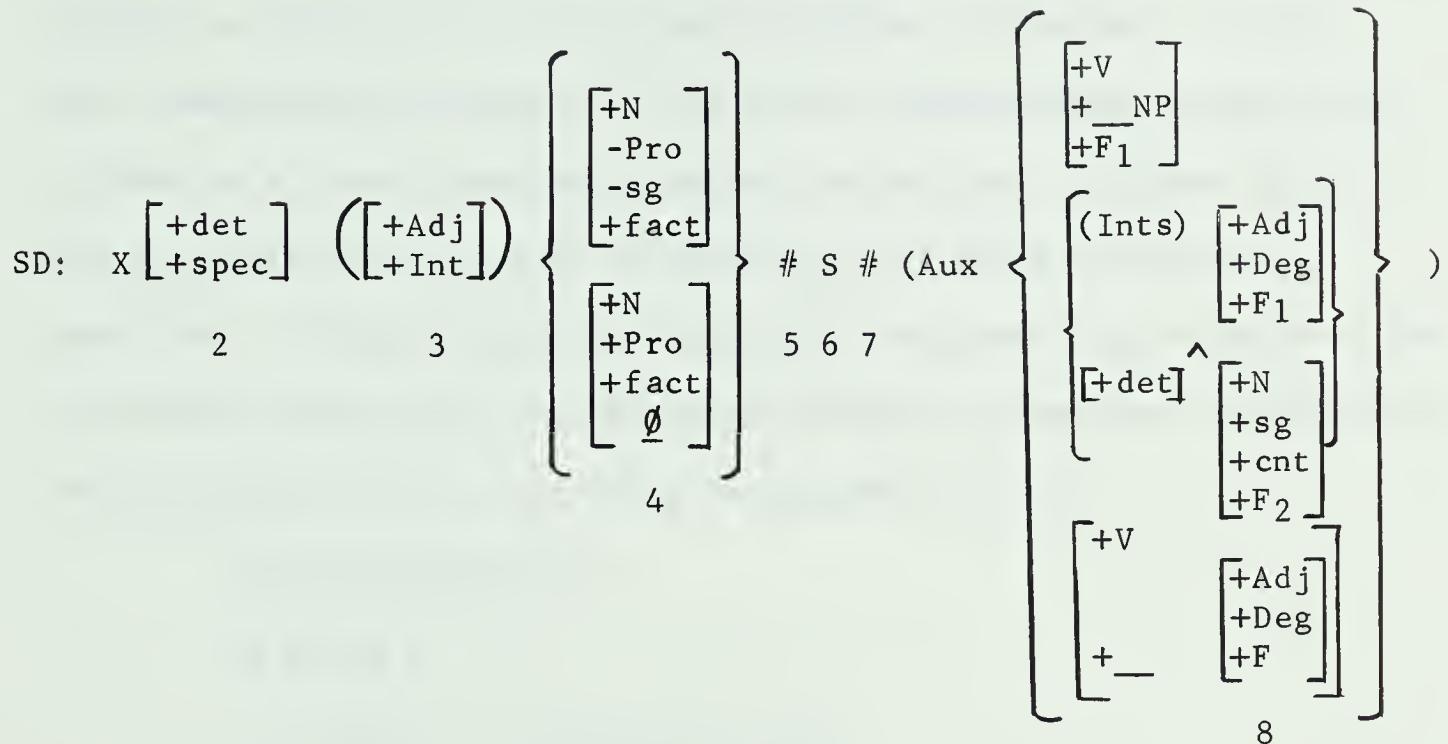
sestra
devuška
zena
ucenica
staruxa

The question arises as to whether these features of gender and class should be derived in the base or whether inherent specification is adequate. If subcategorization rules derived both these features, a large number of deviant strings would result. This fact would not affect the generation of grammatical sentences; but it would seem that the fewer the deviant strings, the more efficient the grammar. A second criticism in this regard is that once these features have been derived, they must also be specified with each entry in the lexicon. Inherent specification would eliminate this derivation and still provide the features in the lexicon. This analysis shall derive gender in the singular plus common nouns. In the remaining minus common nouns gender and number are accounted for by inherent specification. Class for all nouns is also introduced by inherent features. The notation used to designate class is outlined below.

- (a) +ØCL ø suffix for masculine nominative singular
- (b) -ØCL o (e) suffix for neuter nominative singular
- (c) +1CL a suffix for feminine and masculine nominative singular
- (d) -1CL ø suffix for feminine nominative singular
- (e) -decl for nondeclineable nouns

This concludes the discussion of the base component of the Russian NP. All necessary branching, subcategorization and selectional rules have been accounted for. A brief mention of the lexicon has also been provided. The only remaining discussion for this analysis is the transformational component. Since there are no changes in the conventions or in the nature of the transformations, the following section will begin with the discussion of the Russian factive nominal.

3.5 T1. Factive Nominal Optional



Cond: $Q \neq 6$, \emptyset in 4 may only occur with $[+\text{Dem}]$ in 2

SC: 6 \longrightarrow $\overset{\wedge}{\text{sto}}$ 6; 5,7 \longrightarrow null

T1 operates in much the same manner as the English factive nominal. The resulting P-markers from this transformation will display a general factive nominal structure. Some of these structures, upon certain specified conditions, will necessarily enter other T-rules thus deriving specific factive nominal constructions. Several such T-rules will receive only brief mention while some others will be presented in this grammar.

The nouns in item (4) of the SD must bear the feature of plus factive. This feature is not derived by subcategorization rules; it is an inherent specification within the minus quantity subcategory. Another inherent feature is also present in the dummy carrier (\emptyset). Such a specification ($[-\text{Fem}]$) is necessary for the appropriate agreement in

the determiner to. The determiners capable of entering the NP-factive nominal are restricted to the plus specifying subcategory. Of the plus demonstrative group, only tot may be inserted since etot is restricted to a cooccurrence with nonfactive matrices. In fact tot is the only determiner allowed to occur with the dummy carrier (cf. condition). The SC introduces the factive morpheme što and deletes the sentential boundaries. The following examples illustrate the limitation of determiners and the resulting derivation of the SC.

tot samyj fakt što S

to Ø što S

on prišol k Ø zaključeniju što S

*každyj fakt što S

Item (8) of the SD accounts for some (not all) of the Pred-Phrases possible when the factive NP functions as the subject ($8 \neq \text{null}$). If (8) were equal to null, the factive NP would be under the dominance of a Pred-Phrase. Each frame from top to bottom (in item (8)) is illustrated below.

tot fakt što S { vozbudal menja
byl jasen
byl Ø sjurprizom
kazalsja strannym

When certain factive nominal constructions appear, further T-rules are required to render them grammatical. For instance, to Ø obligatorily demands the deletion of the determiner in special cases. In other cases, it must remain as it stands. The examples below illustrate these particular conditions as well as the necessary deletions and changes.

- (a) on ivan skazal to Ø što Ø štarik umer ----→
on skazal što Ø starik umer
- (b) Ø čelovek ušol iz-za togo Ø što on čelovek byl bol'nym ----→
Ø čelovek ušol iz-za togo što on byl bol'nym
- (c) to Ø što on ivan prišol bylo jasno ----→
što on prišol bylo jasno ----→
bylo jasno što on prišol

T2. Relativization

SD: X $\left[\begin{smallmatrix} +\text{det} \\ -\text{unique} \end{smallmatrix} \right]$ [+N] # X [+det] [+N] X # X
2 3 4 5 6 7 8 9

Cond: $2^{\wedge}3 = 6^{\wedge}7$, if [to] $\in 2$ and [+Pro] $\in 3$, or if [-Pro] $\in 3$,
 $Q \notin 5$

SC: 6 → +Rel; 4,7,9 → null

The process of relativization serves the same purpose as in English; that is the resulting constructions will provide a means of embedding prenominal and postnominal modifiers. Its application is contingent on the satisfaction of the identity criterion ($2^{\wedge}3 = 6^{\wedge}7$). As mentioned earlier, the cooccurrence of certain determiner subcategories and the specification of the pronominal feature imposes a restrictive scheme on this process.

For instance, plus unique determiners may not cooccur with relative clauses (cf. page 76). Minus unique determiners, on the other hand, are cooccurrent with relative clauses when the noun head is specified minus pronoun. One exception to this latter statement exists;

the demonstrative determiner tot may cooccur with a plus pronoun matrix and a relative clause (cf. condition). The SC predicts the feature plus relative into the determiner (b). In a later transformation, kotoryj will be introduced into all plus relative matrices and if the noun (7) had contained plus pronoun, kotoryj would be changed into kto or sto depending on the relevant specification provided in the determiner.¹⁰ The sentential boundaries and noun (7) are deleted; but a more appropriate formulation would be to pronominalize the noun (7) and have it erased by the late deletion rule. Below are several strings derived by T2. Notice in examples (b) and (c) that the relativized determiner has been shifted forward by a later rule.

- (a) tot $\left[\begin{smallmatrix} +\text{Pro} \\ \check{\text{c}}\text{elovek} \end{smallmatrix} \right]$, $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ prisol, byl ivan ---->
tot $\left[\begin{smallmatrix} +\text{Pro} \\ \check{\text{c}}\text{elovek} \end{smallmatrix} \right]$, $\left[\begin{smallmatrix} +\text{det} \\ \underline{kotor} \end{smallmatrix} \right]$ prisol, byl ivan ---->
tot, kto prisol, byl ivan
- (b) ja $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{ivan} \end{smallmatrix} \right]$ prinjos to $\left[\begin{smallmatrix} -\text{Quan} \\ \emptyset \end{smallmatrix} \right]$, ty $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{pavel} \end{smallmatrix} \right]$ prosil $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$, ---->
ja $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{ivan} \end{smallmatrix} \right]$ prinjos to $\left[\begin{smallmatrix} -\text{Quan} \\ \emptyset \end{smallmatrix} \right]$, ty prosil $\left[\begin{smallmatrix} +\text{det} \\ \underline{kotor} \end{smallmatrix} \right]$, ---->
ja prinjos to, sto ty prosil,
- (c) \emptyset čelovek, ja $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{ivan} \end{smallmatrix} \right]$ byl u $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$, ---->
 \emptyset čelovek, ja $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{ivan} \end{smallmatrix} \right]$ byl u $\left[\begin{smallmatrix} +\text{det} \\ \underline{kotor} \end{smallmatrix} \right]$ ---->
 \emptyset čelovek, u kotorogo ja byl,

¹⁰ Such a change would only take place if the noun-head were specified plus singular. Notice the presence of minus singular in the following example. te, kotorye prijdut rano,

T3. Postdeterminer Adjectivalization Optional

SD: X det X [+N] [+det] [+Rel] (S) Tn Num [+Adj] [~~∞ Card~~] X
2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, [~~∞ Card~~] \notin 3

SC: $\overset{\wedge}{2} \overset{\wedge}{3} \longrightarrow \overset{\wedge}{2} \overset{\wedge}{9} \overset{\wedge}{3}$; 5, 7-9 \longrightarrow null

T3 is the first reduction of a number of relative predicative clauses. In this transformation, the plus numeral adjectives are assigned a new dominance under the major category Det. As a consequence of this T-rule, a clear distinction is made between plus and minus numeral adjectives; the plus numeral adjectives may function as determiners while the minus numeral subcategories require a different dominance. Consider the following examples.

eti pervye tri čeloveka

*eti dobrye tri pervyx čeloveka

This transformation is applied optionally; that is, any strings which meet the given SD may bypass T3 and remain as relative clauses. If two relative clauses (one embedded within the other) of this description occur, then a conjunctive transformation may result upon the satisfaction of certain conditions.

te lošadi kotorye v količestve pjat'

Ø lošadi kotorye v količestvo pjat' i kotorye pervye

The condition stated requires that the variable (3) contain a different specification of a plus numeral adjective than does item (9). Such a condition allows the cyclical embedding of two plus numeral adjectives and at the same time prevents the occurrence of two

subcategories of the same specification. The examples below will illustrate this point as well as some of the grammatical strings derived by T3. Also notice the derived P-marker.

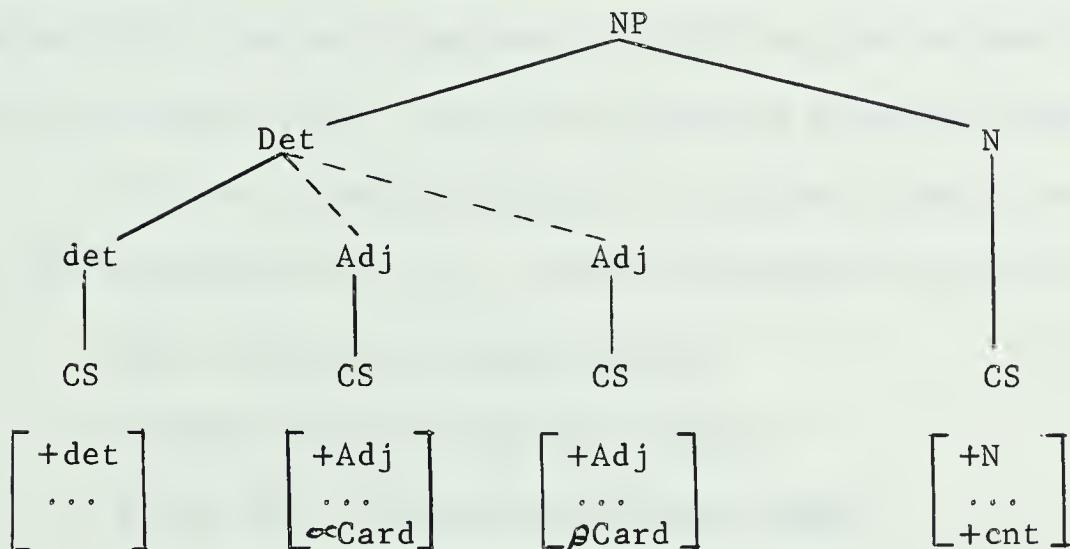
*Ø pjat' desyat' lošadi

*Ø pervyj pjatyj čelovek

eti pervye tri lošadi

Ø šest' pervyx detej

te pervye neskol'ko ulic



T4. Prenominal Adjectivalization Optional

SD: X Det X $\left[\begin{smallmatrix} +N \\ -\text{Pro} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Aux (Ints) $\left[\begin{smallmatrix} +\text{Adj} \\ -\text{Num} \end{smallmatrix} \right]$ X

2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---

Cond: 2-4 are dominated by the same NP, [-Deg] $\not\models 3$

SC: 4 \longrightarrow 8 $\hat{9}$ $\hat{4}$; 5, 7-9 \longrightarrow null

In this transformation, the minus numeral adjectives are optionally attached to the NP in a position immediately preceding the noun (cf. the derived P-marker below). The members (plus and minus degree adjectives) of this minus numeral subcategory each display a

peculiar behavior in the manner in which they are attached to the NP.

Minus degree adjectives can only be embedded once and must always occur immediately adjacent to the noun (4). The stated condition accounts for this and also allows for the recursive embedding of plus degree adjectives and their intensifiers. If a minus degree adjective appears in (3) and (9), the SC is blocked. Otherwise, when plus degree adjectives appear in (3) and (9), the SC may be applied recursively until the SD is no longer satisfied. Hence, if both plus and minus degree adjectives are to appear in a NP, the plus degree subcategories must be embedded first and the minus degree adjective last.

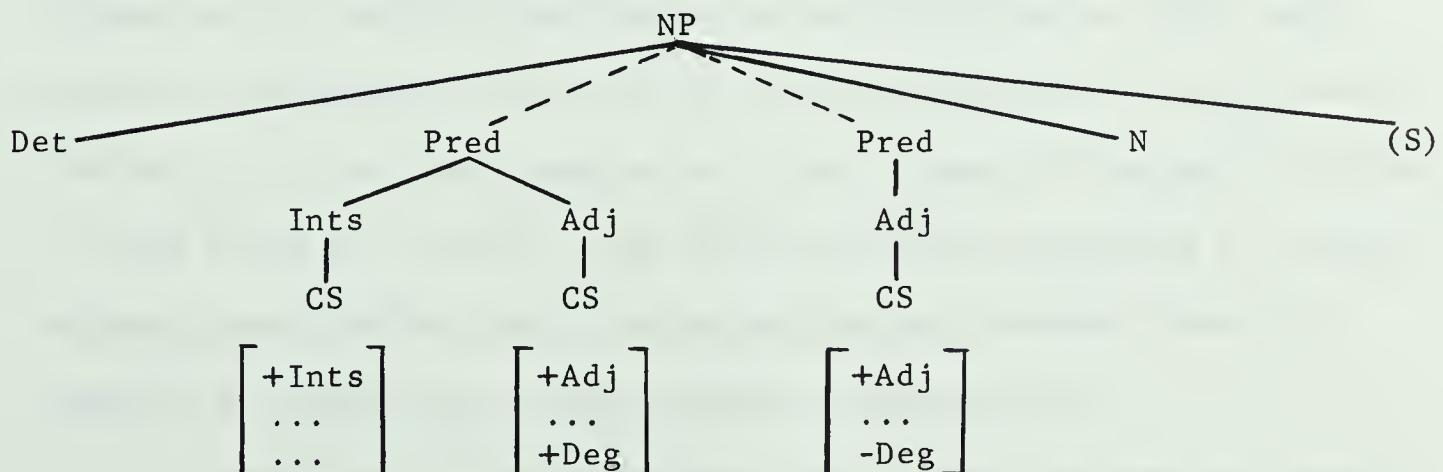
In the following strings, the starred examples are those which may not be generated by T4. A derived P-marker is also included.

*etot ^vserstjanoj tjoplyj sviter

*Ø elektriceskaja krasivaja lampa

Ø dve očen' silnyx elektriceskix lampy

eta tjažolaja drevjannaja dver'



T5. Prenominal Possessive Determiner Optional

SD: X $\left[\begin{smallmatrix} +\text{det} \\ -\text{Dem} \end{smallmatrix} \right]$ X $\left[\begin{smallmatrix} +\text{N} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn u $\left[\begin{smallmatrix} +\text{det} \\ \{+\text{unique} \\ -\text{Dem} \} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{N} \\ +\text{An} \end{smallmatrix} \right]$ X
2 3 4 5 6 7 8 9 10

Cond: 2-4 are dominated by the same NP, 8 is dominated by Pos

SC: 9,10 \longrightarrow +Pos, 2 \longrightarrow $2^{\wedge}9^{\wedge}10$; 5,7-10 \longrightarrow null

The major category Pos is very productive in the sense that it accounts for a large number of possessive and genitive constructions. It is also responsible for the derivation of the minus degree subcategory (cf. page 75). As will be seen in this transformation, three general classes of prenominal modifiers may result; these are: the reflexive determiner svoj, the possessive pronominal determiners (such as moj, tvoj, etc.), and the reflexive adjectives (such as volčij, materinskij, etc.). Numerous late morpheme structure rules will perform the appropriate derivational processes on the strings emerging from T5.

In scanning the SD, a number items should be explained. Determiner (2) contains the feature minus demonstrative which automatically designates that the noun is of a minus pronoun specification. Similarly, (9) and (10) describe only two strings; $[+\text{unique}]^{\wedge} [+Pro]$ and $[-\text{Dem}]^{\wedge} [-\text{Pro}]$. The noun (10) will be further restricted to the plus animate specification, the claim being that only animate nouns are capable of becoming prenominal possessive determiners.

When the SC is applied, the first change predicts the feature plus possessive into the determiner and noun matrices (9) and (10) respectively. This feature will mark the derivation of ja into moj.

It will likewise provide for the reflexive derivatives of nouns such as the adjective otcovskij derived from otec. A reflexivization transformation will also analyze the prenominal possessive determiner for the satisfaction of the identity criterion. The resulting form will be the reflexive determiner svoj. A second instruction in the SC requires the shift of (9) and (10) into a prenominal position under the dominance of Det. The preposition u is also included in the erasure of the items in the relative clause.

A problem arises in attempting to make the deletion of the zero determiner (2) and (9) recoverable. It will be assumed that late deletion rules will erase these. For the present analysis however, an unwritten rule will consider one of the zero determiners deleted.

The following examples illustrate some of the strings derived by T5 as well as some of their subsequent derivations.

(a) Ø pero $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ u ja ivan ----→

Ø $\left[\begin{smallmatrix} +\text{Pos} \\ ja \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{Pro} \\ ivan \end{smallmatrix} \right]$ pero ----→

mojo pero

(b) Ø ljubov' $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ u Ø materi ----→

Ø $\left[\begin{smallmatrix} +\text{Pos} \\ Ø \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{Pos} \\ mater \end{smallmatrix} \right]$ ljubov' ----→

Ø materinskaja ljubov'

(c) Ø ivan nasol Ø $\left[\begin{smallmatrix} +\text{Pos} \\ ivan \end{smallmatrix} \right]$ pero ----→

Ø ivan nasol svojo pero

T6. Postnominal Modifier Genitive Optional

SD: X Det X [+N] $\begin{bmatrix} [+det] \\ [+Rel] \end{bmatrix}$ (S) Tn u [+det] X $\begin{bmatrix} [+N] \\ [-Pro] \\ [+An] \end{bmatrix}$ X
2 3 4 5 6 7 8 9 10 11

Cond: [+Pos] $\not\in$ 2, 8-11 are dominated by Pos

SC: 9 \longrightarrow +Gen, 4 \longrightarrow [^] 4 9-11; 5,7-11 \longrightarrow null

T6 is another optional reduction of the predicative category Pos. A definite notion of possession is involved here with the preposition u and the plus animate noun (11). As will be seen in the following T-rule, this notion of possession is not present with u and the nonanimate nouns in the same frame.¹¹ The nonanimate subcategories must obligatorily appear in the genitive postnominal modifier, whereas the plus animate nouns in the present T-rule have the option. If the option is not taken, the category Pos is then eligible for either the possessive postnominal modifier or for the relative clause proper. There is also a second restriction on the specification of the plus animate nouns. These may never contain the feature plus pronoun; prenominal genitive postnominal modifiers are inadmissible.

*Ø pero menja

*Ø brat vas

In the stated condition, the occurrence of the prenominal possessive determiner would not allow T6 to operate. A NP containing both a

¹¹The preposition u and ot might very well provide a distinction between possession and belonging respectively. The grammar will not attempt this distinction; it shall retain the strict use of u.

prenominal possessive determiner and a genitive postnominal modifier would most definitely be an aberrant string.

*mojo pero Ø brata

*svoj den'gi Ø ^celoveka

However the prenominal possessive determiner may be present in the postnominal modifier itself (cf. example (b)).

In the SC, the feature of plus genitive is predicted into the determiner matrix (9). This feature will be assigned to the other constituents of the NP by means of a late case agreement transformation. The second part of the SC performs the postnominal attachment of items (9-11) to the NP.

The following examples are strings derived by T6.

(a) kazdaja kniga $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \cup \emptyset$ ivan ---->

kazdaja kniga $\left[\begin{smallmatrix} +\text{Gen} \\ \emptyset \end{smallmatrix} \right]$ ivan ---->

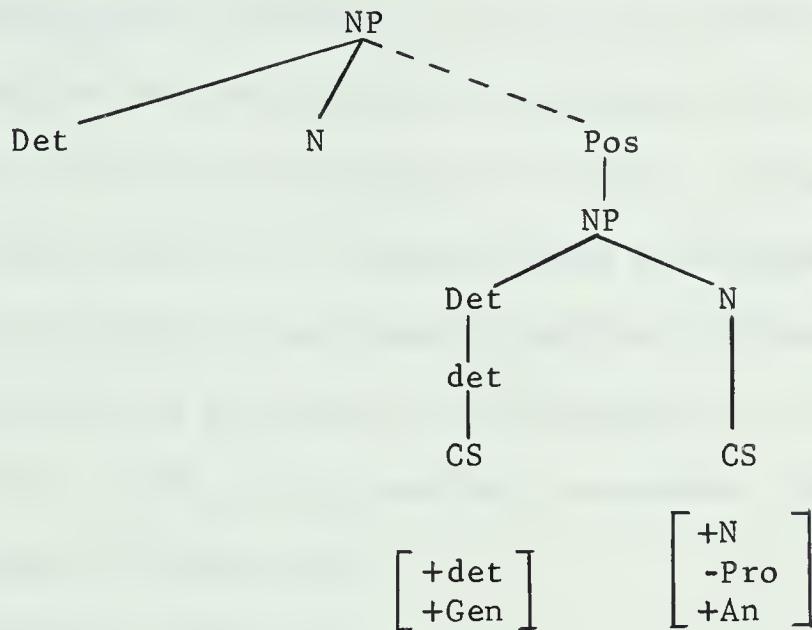
kazdaja kniga Ø ivana

(b) Ø pal'to $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \cup \left[\begin{smallmatrix} +\text{Pos} \\ ja \end{smallmatrix} \right]$ ivan brat ---->

Ø pal'to $\left[\begin{smallmatrix} +\text{Pos} \\ +\text{Gen} \\ ja \end{smallmatrix} \right]$ ivan brat ---->

Ø pal'to moego brata

The P-marker below has been derived by T6.



T7. Postnominal Modifier Genitive

SD: $x [+N] \left[\begin{array}{l} +\text{det} \\ +\text{Rel} \end{array} \right] (S) Tn \underline{u} [+det] x [+N] [-\text{Pro}] x$
 2 3 4 5 6 7 8 9

Cond: 6-9 are dominated by Pos, $[+\text{An}] \not\models 9$

SC: 7 \longrightarrow +Gen, 2 \longrightarrow $\hat{2}^{7-9}$; 3,5-9 \longrightarrow null

As explained in the previous transformation, the preposition u and the nonanimate nouns do not provide a definite notion of possession. These nouns must obligatorily become genitive postnominal modifiers. If T7 were optional, an ungrammatical string like the one below would result.

Ø koleso $\left[\begin{array}{l} +\text{det} \\ +\text{Rel} \end{array} \right] u svoego avtomobilja $\dashrightarrow$$

*Ø koleso kotoroe u svoego avtomobilja

The SD of T7 is very general and will accomodate all postnominal genitives distinct from those derived by T6. As this transformation now

stands, numerous semantically aberrant strings are possible. Such strings demonstrate the necessity of selectional restrictions operating between the subject and the possessive predicator (cf. the starred examples below). A complete grammar would either attempt to establish such a selectional system or it would develop an alternate solution accounting for the genitive postnominal modifier.¹² When the SC is applied, the feature of plus genitive is assigned to the determiner (7) and the items (7) to (9) are postnominally attached. Some of the resulting strings are shown below.

Ø stakan Ø xorosego vina

Ø množestvo Ø 1judej

Ø nazvanie etogo mesta

Ø versina Ø gory

*eta 1jubov' Ø masiny

*Ø 1jubopystvo Ø vody

T8. Postnominal Modifier Locative, Possessive Optional

SD: X [+N] $\begin{bmatrix} [+det] \\ [+Rel] \end{bmatrix}$ (S) Tn $\begin{Bmatrix} \text{Loc} \\ \text{Pos} \end{Bmatrix}$ X

2 3 4 5 6

SC: 2 \longrightarrow 2⁶; 3,5,6 \longrightarrow null

¹²About the only possible means for a selectional system of this nature is to employ a verb frame requiring a dummy lexical entry which would contain the desired selectional features. This would actually be the same as including the copula in the lexicon.

T9. Postnominal Modifier Appositive Optional

SD: X [+N] $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn NP X
2 3 4 5 6

SC: 2 \longrightarrow $2^{\wedge} * ^{\wedge} 6^{\wedge} *$; 3,5,6 \longrightarrow null

Both T8 and T9 perform reductions of predicative relative clauses. If the options of these two transformations are not taken, then the resulting constructions will be relative clauses proper. T8 transforms the predators Loc and Pos into postnominal modifiers while T9 converts the NP-predicator into appositive constructions. The appositives constructions are a particular type of postnominal modifier which requires a distinct intonational pattern. It should be noted that the SC of T9 provides two asterisks, one on either side of the NP. These will serve as markers for the post cyclical rules which will assign the required intonational contour.¹³ Examples (a) and (b) illustrate strings derived by T8 and T9 respectively.

(a) Ø kniga u menja

Ø gor'kaja vražda meždu sosedami

Ø skam'ja pod Ø derevom v Ø parke

(b) moja mat' * Ø marija ivanovna *

etot mužčina * Ø inžener, kotoryj s Ø direktorom, *

Ø golod * Ø nescastnaja sud'ba *

¹³ Extensive research on the intonational patterns of relative clauses might reveal two types of clauses like in English. If such is the case, then T9 would most likely be a reduction of an appositive clause.

T10. Postnominal Modifier Pred-Phrase Optional

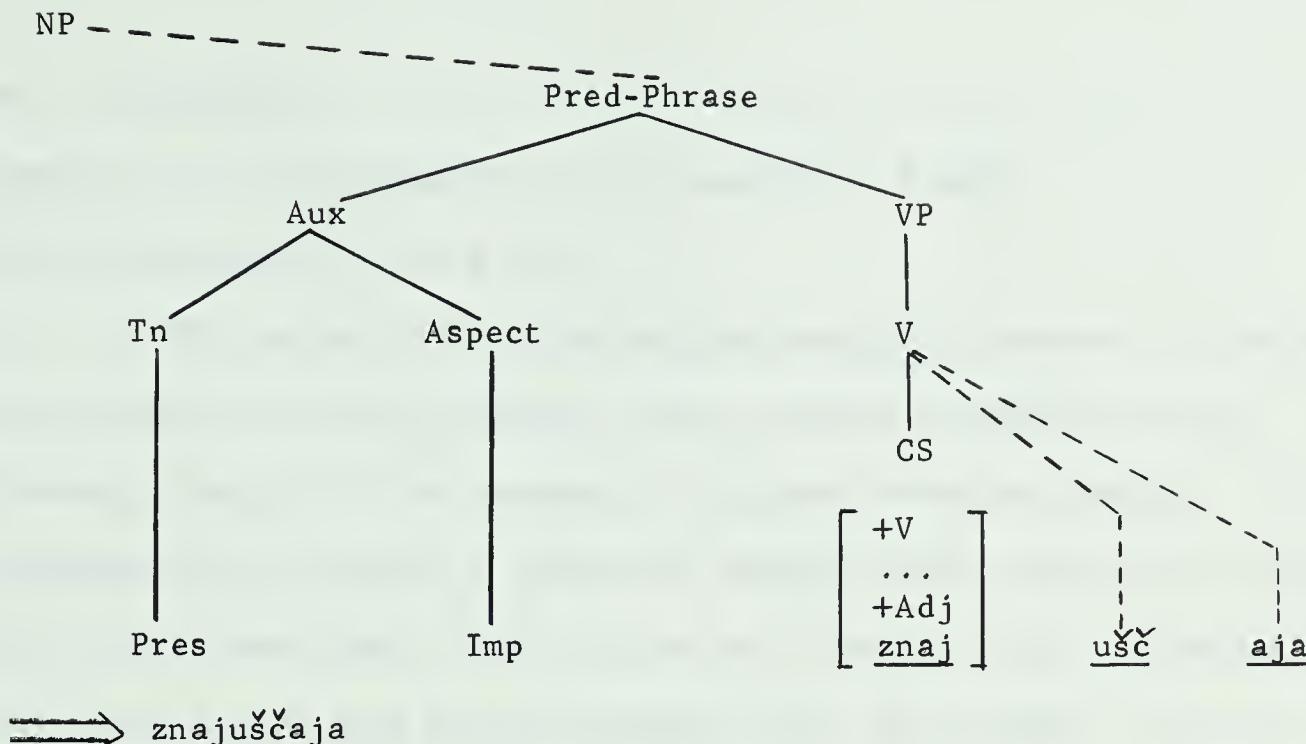
SD: X [+N] [+det] {Pres Imp
Past Aspect} [+V] X X

2 3 4 5 6 7

SC: 6 → +Adj, 2 → 2⁴⁻⁷; 3-7 → null

Both this transformation and T10 of the English analysis are responsible for the initial step in the derivation of active participles. The main concern of these two rules is to account for the postnominal modifiers containing active participles. A more comprehensive analysis would require that these T-rules occur before T4 so that prenominal participial forms might be considered. Since this would necessitate a thorough investigation of the verb system, these forms will remain within the postnominal modifiers.

With regard to the SD of the present transformation, items (4) and (5) of the auxiliary offer the relevant information for the description of active participles. Present participles will derive from present imperfective stems, and past participles will contain either choice of Aspect. In the SC the feature of plus adjective is assigned to the verb matrix and items (4) to (7) become the constituents of the postnominal modifier. Late morpheme structure rules will interpret the plus adjective, plus verb matrices and will derive the appropriate participial forms. The subsequent derived P-marker indicates how this derivation might be performed. Agreement has also been included.



The following examples illustrate the Pred-Phrase-postnominal modifier.

- (a) eta deroga, kotoraja vedjot v Ø moskvu, ----→
eta doroga, veduščaja v Ø moskvu,
- (b) Ø učenik, kotoryj končil Ø urok, ----→
Ø učenik, končivšij Ø urok,
- (c) Ø mal'čik, kotoryj javljaetsja bol'nym, ----→
Ø mal'čik, javljajuščijs' bol'nym,

T11. Kt Introduction

$$\begin{array}{ccccccccc}
 \text{SD: } & X & (& \left\{ \begin{array}{c} \text{sto} \\ \{ Q \} \end{array} \right\} &) & X & [+det] & (& X \\
 & 2 & & 3 & & 4 & & 5 & \\
 & & & & & & & \left[\begin{array}{c} +N \\ [-\text{Pro}] \\ [+cnt] \\ \emptyset \end{array} \right] & \\
 & & & & & & & 6 & \\
 & & & & & & & & X) X \\
 & & & & & & & & 7
 \end{array}$$

Cond: a if [+Rel] ⊂ 4

SC: 4 → +kt

Cond: b 4-7 are dominated by the same NP, 2 ≠ null

SC: 4 → +kt; 2 → null

The method of deriving various anaphoric pronouns in Russian is very similar to that in English. When certain conditions are met, the feature plus kt will be assigned to a given determiner matrix. The determiner will contain a contextual feature which contains the specification of the noun-head. Late T-rules will interpret this information and will then derive such forms as kotoryj, kto, sto and cej. The kt-feature of Russian is the counterpart of the English wh-feature.

T11 operates on two obligatory conditions. Condition (a) analyzes the SD for any relativized determiners. These determiners will all require the kt-feature so that the relative pronominal forms may be derived. The derivational processes will derive kto and sto if the specification of the noun-head is plus pronoun and minus singular. Kotoryj will be introduced upon the 'elsewhere' specification. In the examples below several relative pronouns are derived. Notice the forward shift of the relativized determiner in example (a) (cf. T12).

(a) on ivan xotel to Ø, ja andrej prinjos $\begin{bmatrix} +det \\ +Rel \end{bmatrix}$, ----→

on ivan xotel to Ø, ja andrej prinjos $\begin{bmatrix} +kt \\ +Rel \end{bmatrix}$, ----→

on xotel to, sto ja prinjos,

(b) Ø čelovek, $\begin{bmatrix} +det \\ +Rel \end{bmatrix}$ prisol, ----→

Ø čelovek, $\begin{bmatrix} +det \\ +kt \end{bmatrix}$ prisol,

Ø čelovek, kotoryj prisol,

Condition (b) analyzes the two markers in item (2), the factive morpheme sto and the question marker Q. The mere fact that (2) is in brackets signifies that the kt-introduction is optional for these constructions. When the factive morpheme is present, the SC will apply to the NP (4-7). The determiner (4) of this NP will always be the matrix which receives the kt-feature. Item (8), the noun-head, is restricted in specification to either the dummy carrier Ø or to the features minus pronoun and plus count.¹⁴ When the SC is applied, the assignment of the wh-feature may be performed cyclically so that forms like example (b) are possible. After the assignment of plus wh the factive morpheme is deleted.

- (a) ... znaet, sto $\left[\begin{smallmatrix} +\text{kt} \\ \text{ono} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{hum} \\ \emptyset \end{smallmatrix} \right]$ sdelal Ø znak, ----→
... znaet, kto sdelal Ø znak,
- (b) ... znal sto $\left[\begin{smallmatrix} +\text{kt} \\ \emptyset \end{smallmatrix} \right]$ čelovek ušol s $\left[\begin{smallmatrix} +\text{kt} \\ \text{ono} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{hum} \\ \emptyset \end{smallmatrix} \right]$ ----→
... znal, kotoryj čelovek ušol s kem

The question marker will allow the very same process to apply to any number of NP's satisfying condition (b). Once the assignment of the kt-feature is done, Q is deleted. A more complete grammar might retain the question marker in order to facilitate those questions which are distinguished only by a particular intonational contour.

¹⁴If minus pronoun, plus count matrices were not specified, such forms as the following would result.

*kotoryi ivan,
*kotoraja pečal'

The examples below illustrate the kt-introduction in simple interrogative questions.

(a) Q $\left[\begin{smallmatrix} +\text{Pos} \\ +\text{kt} \\ \underline{\text{ono}} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{hum} \\ \emptyset \end{smallmatrix} \right] \underline{\text{pero}} \underline{\text{na}} \emptyset \underline{\text{stole}} \dashrightarrow$

$\checkmark' \underline{\text{jo}} \underline{\text{pero}} \underline{\text{na}} \underline{\text{stole}}$?

(b) Q $\underline{\text{on}} \underline{\text{ivan}} \underline{\text{uvidel}} \left[\begin{smallmatrix} +\text{kt} \\ \underline{\text{ono}} \end{smallmatrix} \right] \left[\begin{smallmatrix} -\text{An} \\ \emptyset \end{smallmatrix} \right] \dashrightarrow$

$\checkmark \underline{\text{sto}} \underline{\text{on}} \underline{\text{uvidel}}$?

(c) Q $\left[\begin{smallmatrix} +\text{kt} \\ \underline{\text{každyj}} \end{smallmatrix} \right] \left[\begin{smallmatrix} -\text{Pro} \\ \underline{\text{čelovek}} \end{smallmatrix} \right] \underline{\text{xocet}} \underline{\text{spat'}}$ \dashrightarrow

$\underline{\text{kotoryj}} \checkmark \underline{\text{čelovek}} \checkmark \underline{\text{xocet}} \underline{\text{spat'}}$?

T12. Kt Shift

SD: X NP Aux X (Prep) $\left[\begin{smallmatrix} +\text{det} \\ +\text{kt} \end{smallmatrix} \right]$ X X

2 3 4 5 6 7

Cond: $[+\text{kt}] \not\in 2, 6, 7$, 6,7 are dominated by the same NP, 2-7 are dominated by the same S

SC: 2 $\longrightarrow \overset{\wedge}{5-7} 2$; 5-7 null

The need for T12 arises from the previous kt-introduction.

When the kt-feature is assigned to a given determiner matrix, the matrix in question may not always be found in the subject of the sentence. As will be seen, the sentence concerned here may be either a constituent or matrix sentence. The necessity of a forward shift of the kt-determiner is apparent in all three cases of its occurrence; in relative clauses, factive nominals and simple questions. It can be seen from the

example below that the kt-determiner in the relative clause must appear at the front of the embedded S.

Ø kniga, ja ivan kupil $\left[\begin{array}{l} +\text{det} \\ +\text{Rel} \\ +\text{kt} \end{array} \right]$, ---->

Ø kniga, $\left[\begin{array}{l} +\text{det} \\ +\text{Rel} \\ +\text{kt} \end{array} \right]$ ja ivan kupil,

Ø kniga, kotoruju ja kupil,

For the kt-shift to operate, two requirements must be satisfied.

The shift must be blocked when the kt-determiner is present in the NP-subject. Otherwise two or more kt-matrices at the front of one sentence would render the construction ungrammatical.

*s kem kto usol?

*kogo kotoryj čelovek uvidel?

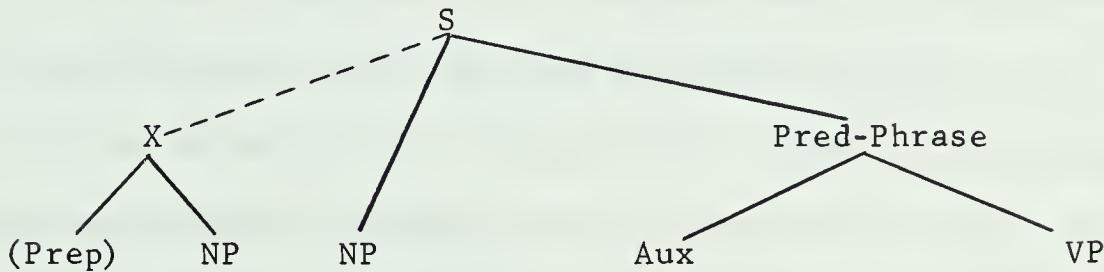
Thus, if the kt-shift is to operate, item (2) must not contain a kt-determiner. The second requirement is that the range of the shift be confined to the first immediately dominating S. In relative clauses and factive nominals, sentential dominance will refer to the embedded S, whereas in simple questions, the matrix sentence will be concerned.

The application of the SC attaches an optional preposition, the kt-determiner, and the remaining members of the same NP to the major category S. The position of these is immediately preceding the NP-subject (cf. derived P-marker). The examples below demonstrate the application of the kt-shift.

(a) Ø čelovek znal, on ivan sdelal $\left[\begin{array}{l} +\text{det} \\ +\text{kt} \end{array} \right] \left[\begin{array}{l} -\text{An} \\ \emptyset \end{array} \right]$ ---->

$\emptyset \underline{\text{čelovek}} \underline{\text{znal}}, \left[\begin{smallmatrix} +\text{det} \\ +\text{kt} \end{smallmatrix} \right] \left[\begin{smallmatrix} -\text{An} \\ \emptyset \end{smallmatrix} \right] \underline{\text{on}} \underline{\text{ivan}} \underline{\text{sdelal}}, \longrightarrow$
 $\emptyset \underline{\text{čelovek}} \underline{\text{znal}}, \underline{\text{sto}} \underline{\text{on}} \underline{\text{sdelal}},$

(b) $\underline{\text{on}} \underline{\text{pavel}} \underline{\text{xodil}} \underline{\text{s}} \left[\begin{smallmatrix} +\text{det} \\ +\text{kt} \end{smallmatrix} \right] \left[\begin{smallmatrix} -\text{Pro} \\ \underline{\text{mužcina}} \end{smallmatrix} \right] ? \longrightarrow$
 $\underline{\text{s}} \left[\begin{smallmatrix} +\text{det} \\ +\text{kt} \end{smallmatrix} \right] \left[\begin{smallmatrix} -\text{Pro} \\ \underline{\text{mužcina}} \end{smallmatrix} \right] \underline{\text{on}} \underline{\text{ivan}} \underline{\text{xodil}} ? \longrightarrow$
 $\underline{\text{s}} \underline{\text{kotorym}} \underline{\text{mužcinoj}} \underline{\text{on}} \underline{\text{xodil}} ?$



T13. Reflexivization

SD: $x \left[\begin{smallmatrix} +\text{det} \end{smallmatrix} \right] x \left[\begin{smallmatrix} +\text{N} \\ +\text{An} \end{smallmatrix} \right] x (\left[\begin{smallmatrix} +\text{V} \end{smallmatrix} \right]) x \left[\begin{smallmatrix} +\text{det} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{N} \end{smallmatrix} \right] x$

2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---

Cond: 2-9 are dominated by the same S, 2-4 are dominated by the same NP and $\subseteq [N, S]$, 4 = 9, 8 $\overset{\wedge}{9}$ are the only members of an NP which does not occur in a prenominal or postnominal modifier.

SC: 8 \longrightarrow +Reflex, 9 \longrightarrow +Pro

Reflexivization in Russian presents many of the same problems found in English. An adequate formulation solving these problems has yet to be discovered. Both T13 of the present grammar and T15 of the English analysis share very similar SD's, conditions, and SC's. Whether this indicates any universal significance or not is difficult to decide, since a number of points have not been taken into account. In any case,

the subsequent discussion shall point out these existing problems as well as suggest alternate solutions.

T13 is an obligatory transformation functioning upon the satisfaction of the identity criterion. The identity criterion analyzes two NP's which are under the dominance of the same S. Of the two members involving the identity criterion, the first must always be the NP-subject.¹⁵ To be more precise, it is the noun-head (4) which must be equal in specification to another such noun-head elsewhere. The second noun (9) is the only noun of the NP (6⁹). That is, prenominal possessive and postnominal modifiers are excluded from this NP. As for the specification of the nouns (4) and (9), no information for the purpose of derivational processes is offered in these matrices; number and gender are of no consequence to the formation of the reflexive morpheme sebia. However the specification is necessary for satisfying the identity criterion. The following examples will illustrate the purpose of the identity criterion as well as demonstrate the necessity of the condition of sentential dominance.

- Dat
- (a) ja ivan kupil č knigu ja ivan ----->
- ja kupil č knigu sebe ----->
- ja kupil sebe č knigu
- (b) č čelovek zašol k tem ljudjan, ktorove

¹⁵It is interesting to note that since the NP-subject may never be reflexivized, no nominative form of sebia exists.

znakomy s Ø ^vcelovek, ---->
8 9
*Ø ^vcelovek zasol k tem ljudjam, kotorye
znakomy s soboj,

A problem arises concerning the power of the identity criterion.

In certain cases this condition overlooks the need for a more sensitive distinction between two nouns of the same specification. Consider these examples.

- (a) on ^vcelovek videl on ^vcelovek v Ø zerkale ---->
- (b) on videl sebja v Ø zerkale
- (c) *on videl ego v Ø zerkale

Although example (c) must be considered grammatical, it is starred because the criterion could not make the desired distinction. A comprehensive grammar would account for this distinction by using reference indices in the subcategorization rules.

The major problem of reflexivization lies in the specification of item (6), the verb. As it now stands any verb (the copula included) may be present in frame (6). The necessary restrictions for the verbs entering T13 are not yet understood; however the transformation does offer some insight as to how reflexive verbs might be derived. The lexicon would probably contain only nonreflexive forms; that is certain marked verbs entering this present T-rule would have one of their NP- complements relativized. Later rules would first derive sebja and then sja which would be affixed to the verb. The example below outlines the possible sequence of derivations.

ja ivan moju ja ivan ---->

ja moju sebja ---->

ja mojus'

A complete understanding of the verb system would undoubtedly reveal the information required for an adequate solution of reflexivization.

In the SC, the determiner (8) receives the feature of plus reflexive which will later be interpreted by a morpheme structure rule as sebja. Noun (9) is pronominalized so that it may be nullified by the late deletion of plus pronoun matrices. The following examples illustrate the final output of strings which have entered T13.

on posadil Ø rebjonka okolo sebja

ja čuvstvuju sebja bol'nym

Ø čelovek prisol k sebe

on byl u sebja

T14. Copula Insertion

SD: X Past Aspect Pred X

2 3 4

SC: 4 —————> $\left[\begin{array}{c} +V \\ \dots \\ \dots \\ \text{by} \end{array} \right] \hat{\wedge} 4$

T15. Deletion of Plus Pronoun Matrices

SD: X $\left[\begin{array}{c} +N \\ +Pro \end{array} \right]$ X

2

SC: 2 —————> null

Since no frame for the copula is provided in the base, it will

have to be introduced transformationally. Such an introduction should occur sometime after the predicative relative clauses have been reduced. The advantage in this lies in the fact that the reduction transformations would not have to delete an element which is unnecessary in their SC's. A second advantage is that the introduction of by is contingent only on the occurrence of the past tense. Hence T14 will insert a completely specified verb matrix containing by. Its position will be immediately preceding the category Pred under the dominance of NP. A verb agreement rule will transfer number and gender from the noun-subject into the copula matrix.

T15, the final transformation of the Russian analysis, deletes all plus pronoun matrices. The operation of the SC is apparent in the examples below. In a complete grammar this present transformation would occur very late so that all processes of pronominalization might be allowed to occur.

- (a) ja $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{ivan}} \end{smallmatrix} \right]$ prisol ----→
ja prisol
- (b) $\left[\begin{smallmatrix} +\text{Reflex} \\ \underline{\text{on}} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{Pro} \\ \check{\text{celovek}} \end{smallmatrix} \right]$ ----→
sebia
- (c) kazdyj $\left[\begin{smallmatrix} +\text{Pro} \\ \check{\text{celovok}} \end{smallmatrix} \right]$ iz zi $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{ljudi}} \end{smallmatrix} \right]$ ----→
kazdyj iz nas
- (d) etot $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{rabotnik}} \end{smallmatrix} \right]$ ----→
etot

Chapter III has thus presented and discussed the rules necessary in generating Russian NP's. These rules and a sample lexicon may be found in the grammar provided in Appendix B. In the final remaining chapter, the rules of both analyses will be considered in an attempt to establish certain points of contrast between the English and the Russian NP's.

CHAPTER IV

CONTRASTIVE CONCLUSIONS

4.0 In achieving a valid contrastive analysis, the method of investigation must be independent of the systems analyzed. Optimally speaking, a universal grammar would offer the ideal contrastive analysis. In view of the fact that the universality of the given method has yet to be proven, one can only apply the methodology and hope that the end result is a step in the right direction. In reference to this analysis, it is hoped that the assigned model has been applied independently; that is, the model should not be designed specifically for one language and then forced upon another. Whether this independence is present or not, it is difficult to assess. If it is present, then the conclusions drawn will offer valuable material on at least three levels; contrastively between English and Russian, generally among the Indo-European languages and universally for all natural languages. Since the scope of the analysis involves just two languages, conclusions can be drawn only with reference to the first level. Hence this chapter will attempt to point out the salient issues of contrast between the English and Russian NP's.

4.1 The base component of the two grammars presents a number of interesting differences between the two languages. In general however, the rules are quite similar to one another; that is, similar categories are developed or expanded in a similar manner. The following discussion

shall consider the apparent differences in each section of the base component.

Of the three sections in the base component, the branching rules demonstrate the greatest similarity. Rule (7) of the English analysis and Rule (8) of the Russian grammar each expand Aspect in a different way. This might suggest that if the branching rules are to be general, it would be best to account for aspect in the language-specific rules. In other words, aspect might be considered as a grammatical feature derived by the subcategorization rules. As for the remaining branching rules, no significant differences are apparent. It appears that the deep structures of Russian and English are practically, if not completely, identical. If a contrastive grammar of the Russian and English language were to be formulated, one set of branching rules would be sufficient for both languages. The language-specific rules would begin with the subcategorization of the first lexical category.

The subcategorization rules take into account the idiosyncratic behavior of the lexical subcategories of both languages. For the most part however, these subcategories share the same major lexical features. To illustrate, the nouns of both systems make distinctions in such general features as common, count, animate, human, quantity and abstract. The remaining features of the nouns serve as grammatical features. Adjectives also have in common such distinguishing features as intensifying, degree, and numeral. The determiner systems, although questionable in formulation, likewise contain features permitting the insertion of pronominal forms, zero determiners and others.

As far as the grammatical features in the noun are concerned, each set of rules contains certain peculiarities in the development of syntactic specification. English nouns, for instance, are assigned a feature of definiteness which is crucial in the cooccurrence restrictions of determiners. The positive specification of this feature when present in plus human, plus pronoun matrices will allow for the development of person. Features of person are necessary for the selectional insertion of pronominal determiners and also for the derivation of reflexive morphemes. For the Russian nouns, person is necessary in the agreement of verbs in the present tense. Furthermore, Russian plus singular matrices require the addition of the feature of gender. Gender is of vital importance in plus singular nouns for the purpose of agreement in adjectives and verbs of the past tense. The inclusion of gender in English nouns is necessary for plus human matrices; reflexive forms also require a distinction in gender in the third person. Inherent specification accounts for the presence of this feature in English nouns. Another difference arises in the plus animate specification in Russian. Animateness for both languages is a crucial distinction in the selectional specification of verbs. However it further bears an inflectional significance for nouns in the genitive and accusative case in Russian.

The subcategorization of adjectives in the two analyses should be considered as a temporary solution. A number of these subcategories would not exist in a complete grammar. Derivational processes would probably account for these adjectives. Ordinal numerals would derive

from the cardinal set and relative adjectives (minus numeral in English and minus degree in Russian) would originate from nouns and verbs. However, the fact remains that the adjectives of both languages require such distinctions as degree and nondegree, numeral and nonnumeral, and intensifying and nonintensifying.

Although the subcategorization of the two determiner systems is very similar, several doubtful issues arise. The first issue questions the validity of including pronouns as determiners. As seen in both analyses, the systems function quite adequately. But the problem of an irrecoverable deletion (T19 in English and T15 in Russian) still remains unsolved when no consideration for a discourse analysis is provided. The second issue concerns the justification of using similar subcategories in the Russian determiner. Until more conclusive evidence supporting a restrictive scheme can be found, no resolutions concerning the cooccurrence restrictions of Russian relative clauses can be made.

The final section of the base component to be discussed is the selectional rules. It may be seen from the analysis that the subcategories requiring selectional features are the same for both languages. A second observation reveals that each rule analyzes at least the specification of the plus noun matrix. As a consequence of this latter observation, the English and Russian nouns may be said to be selectionally dominant. Selectional dominance entails two considerations. Firstly, the subcategories entering these rules are dependent on the specification of the noun. And secondly, the feature composition of the noun is derived without the use of any context-sensitive rules.

Thus the base components of the English and Russian NP's have proven to be quite similar in most respects. It seems that the subcategorization of nouns reveals the greatest difference in the function of the grammatical features. Otherwise, the branching rules, selectional rules and the subcategorization of adjectives and determiners all suggest a greater similarity than dissimilarity. The subsequent consideration of the transformational component will provide additional similarities for contrastive conclusions.

4.2 In considering the transformational component, groups of transformations will be discussed rather than each T-rule individually. The first group will involve the factive nominal, relativization and the wh-kt-introduction and shift. In the second group, the reduction of relative clauses will be considered. And lastly, reflexivization will be considered by itself.

T1 and T2 of both grammars take into consideration the embedded S. The operation of these T-rules is practically the same in each language. When the anaphoric feature (kt or wh) is introduced into a given determiner in either the factive nominal, the relative clause or the simple question, a need arises for the anaphoric determiner to be shifted into the forward-most position of the immediately dominating S. Interesting comments are available upon examining the operations of these transformations. One noteworthy remark is that the factive morphemes that and sto are introduced under the same conditions and deleted likewise when the anaphoric feature is introduced. A second comment concerns

the forward shift of the anaphoric determiner. It would seem that a generality has been captured in this formulation. In fact, this phenomenon is most likely present in the other Indo-European languages as well.

The reduction of relative clauses provides very little variance between the Russian and English analyses. Each grammar contains T-rules accounting for such processes as the postdeterminer and prenominal adjectivalization. The attachment of the prenominal genitive determiners and the postnominal modifiers is likewise common to both. An interesting observation is present in the comparison of the postnominal modifier-Pred-Phrase. As explained earlier, these T-rules derive the active participles. In English, the deletion of Tn was irrecoverable (cf. T10). However in Russian, such a deletion remains recoverable since the active participle morphemes inherently bear the notion of tense.

The final T-rule to be compared is the reflexivization transformation. Although the exact nature of this process is not completely understood in either language, a significant point of contrast is apparent in the derivation of the reflexive forms. English reflexive forms require number, gender, and person in their derivation. That is, if the form herself is to be derived, the noun-head must contain the feature of plus singular, plus feminine and plus third person (or unspecified). In Russian, the counterpart for this form would be sebja (genitive case). Such a form requires only one distinction--case; number, gender and person bear no relevance to its derivation. These features are necessary however, for the satisfaction of the identity

criterion (cf. T13 in the Russian analysis).

4.3 The contrastive conclusions of Chapter IV have thus completed the second objective of this thesis; that is to indicate the obvious points of contrast between the two given grammars. As for the formulation of the two grammars, it is hoped that they provide an insight into the syntactic structure of the NP. In addition, they should stimulate further research and subsequently lead to the formulation of more adequate and comprehensive grammars.

APPENDIX A. A GRAMMAR OF THE ENGLISH NOUN PHRASE

1. BASE COMPONENT

Given: # S #

Branching Rules

1. $S \longrightarrow (Q) \overset{\wedge}{NP} \text{Pred-Phrase}$
2. $\text{Pred-Phrase} \longrightarrow \overset{\wedge}{\text{Aux}} \overset{\wedge}{VP} (\text{Loc}) (\text{Tm})$
3. $VP \longrightarrow \left\{ \begin{array}{l} \overset{\wedge}{\text{Pred}} \\ V \left\{ \begin{array}{l} \overset{\wedge}{NP} (\text{Dat}) (\text{Dir}) (\text{Dur}) (\text{Agent}) (\text{Freq}) \dots (\text{Man}) \\ \overset{\wedge}{\text{Pred}} \end{array} \right\} \end{array} \right\}$
4. $\text{Pred} \longrightarrow \left\{ \begin{array}{l} \overset{\wedge}{NP} \\ \overset{\wedge}{\text{Loc}} \\ \overset{\wedge}{\text{Pos}} \\ (\text{Ints}) \overset{\wedge}{\text{Adj}} \\ \overset{\wedge}{\text{Adj}} \overset{\wedge}{\text{Num}} \end{array} \right\}$
5. $X \longrightarrow \overset{\wedge}{\text{Prep}} \overset{\wedge}{NP}$ where $X = \left\{ \begin{array}{l} \text{Loc, Tm, Dat, Dir, Dur, Agent,} \\ \text{Freq, Man, Pos, Num. \dots} \end{array} \right\}$
6. $\text{Aux} \longrightarrow \overset{\wedge}{\text{Tn}} (\text{M}) (\text{Aspect})$
7. $\text{Aspect} \longrightarrow (\text{have+en}) (\text{be+ing})$
8. $NP \longrightarrow \overset{\wedge}{\text{Det}} \hat{N} (\# S \#)$
9. $\text{Det} \longrightarrow (\text{Prart}) \overset{\wedge}{\text{det}} (\text{Adj})$
10. $X \longrightarrow CS$ where $X = \left\{ V, \overset{\wedge}{\text{Adj}}, \hat{N}, \text{Prart}, \overset{\wedge}{\text{det}}, \overset{\wedge}{\text{Ints}} \right\}$

Subcategorization Rules

11. $[+N] \longrightarrow \left[\begin{array}{l} +\text{Pro} \\ -\text{Com} \end{array} \right]$

12. $[+Com] \longrightarrow \begin{bmatrix} +sg \\ +def \\ +cnt \end{bmatrix}$
13. $\left\{ \begin{array}{l} [+cnt] \\ [-Com] \end{array} \right\} \longrightarrow [+An]$
14. $[+An] \longrightarrow [+hum]$
15. $[+hum] \longrightarrow \begin{bmatrix} +masc \\ +3p \end{bmatrix} / \begin{bmatrix} +Pro \\ +def \end{bmatrix}$
16. $[-3p] \longrightarrow [+1p]$
17. $\begin{bmatrix} -An \\ +cnt \end{bmatrix} \longrightarrow [+Quan]$
18. $[-cnt] \longrightarrow \left\{ \begin{array}{l} [+Abst] / [+sg] \\ [-Abst] / elsewhere \end{array} \right\}$
19. $[+Adj] \longrightarrow \left\{ \begin{array}{l} [+Int] / det _ \\ [-Int] / elsewhere \end{array} \right\}$
20. $[-Int] \longrightarrow \left\{ \begin{array}{l} [+Deg] / (Ints) _ \\ [-Deg] / elsewhere \end{array} \right\}$
21. $[-Deg] \longrightarrow \left\{ \begin{array}{l} [+Num] / _ Num \\ [-Num] / elsewhere \end{array} \right\}$
22. $[+Num] \longrightarrow \left\{ \begin{array}{l} [+Card] / \begin{bmatrix} +N \\ +cnt \end{bmatrix} ooo _ \\ [-Card] / \left\{ \begin{array}{l} \begin{bmatrix} +N \\ +def \\ +cnt \end{bmatrix} \\ \begin{bmatrix} +N \\ +sg \\ -def \\ +cnt \end{bmatrix} \end{array} \right\} ooo _ \end{array} \right\}$

23. [+det] → [+unique]
 24. [-unique] → [+spec]
 25. [+spec] → [+Dem]

Selectional Rules

26. $[+Card] \longrightarrow CS / [\alpha] [\beta]$ ooo where $\alpha = +det$
 $\beta = +N$

27. $[+Int] \longrightarrow CS / [\alpha] [\beta]$ where $\alpha = +det$
 $\beta = +N$

28. $X \longrightarrow CS / _ ooo [\alpha]$ where $\alpha = +N$
 $X = \begin{cases} [+det] \\ [+Prart] \end{cases}$

Sample Lexicon

1. $[+N, +Pro, +sg, +def]$

a \emptyset

2. $[+N, -com, +sg, +def]$

a $[+masc]$

<u>Richard</u>	<u>(Lynn)</u>	<u>(Laurin)</u>
<u>Douglas</u>	<u>(Charles)</u>	<u>(Walker)</u>
<u>John</u>	<u>()</u>	<u>()</u>

c $[-hum]$

<u>Fido</u>	$[+masc]$
<u>Snoopy</u>	$[+masc]$
<u>Lassie</u>	$[-masc]$

3. [+N, -com, -sg, +def]
a the Hebrides
 the Andes Mountains

4. [+N, -Quan]

a	<u>machine</u> <u>report</u> <u>scene</u> <u>hammer</u> <u>pen</u> <u>cough</u>	b	[fact] <u>fact</u> <u>idea</u> <u>notion</u> <u>plan</u>	c	[F ₂] <u>surprise</u> <u>mistake</u> <u>tragedy</u>
---	--	---	--	---	--

5. [+N, +Quan]

a	<u>ton</u> <u>barrel</u> <u>load</u> <u>package</u> <u>jar</u>	b	[+Num] <u>number</u>
---	--	---	-------------------------

6. [+N, +cnt]

a	[+masc]	b	[-masc]	c	[+hum]
	<u>man</u> <u>brother</u> <u>husband</u> <u>king</u> <u>boy</u>		<u>woman</u> <u>sister</u> <u>wife</u> <u>queen</u> <u>girl</u>		<u>person</u> <u>cook</u> <u>pedestrian</u> <u>friend</u> <u>teacher</u>

7. [+N, +cnt, -hum]

a	<u>horse</u> <u>cat</u> <u>snake</u> <u>bird</u> <u>cow</u>
---	---

8. [+N, +Abst]

a	<u>happiness</u> <u>love</u> <u>hatred</u> <u>sorrow</u> <u>fidelity</u>
---	--

9. [+N, -Abst]

a [+sg]

machinery
furniture
gossip
jewelry
water
man [-def]

b [-sg]

clothes
scissors
trousers

10. [+Adj, -Num]

a wooden
steel
empty
full
green

11. [+Adj, -Card]

a first
second
third
next
last
final

12. [+Adj, +Card]

a [+ [-unique] [-sg] ooo_]

two
three
four
many
several
few

b [+ [+spec] [+sg] ooo_]

one

13. [+Adj, +Deg]

a little
weak
tall
strong
nice

b [-Tx]
beautiful
gentle
dangerous

c [+F]
obvious
strange
true
wrong

14. [+Ints]

a very
quite
rather
too

15. [+Adj, +Int]

a $\left[\begin{array}{c} \left[\begin{array}{c} +\text{det} \\ +\text{spec} \end{array} \right] _ \begin{array}{c} -\text{Pro} \\ +\text{sg} \\ -\text{def} \\ +\text{cnt} \end{array} \end{array} \right], -T3, -T4$ b $\left[\begin{array}{c} \left[\begin{array}{c} +\text{det} \\ +\text{spec} \end{array} \right] _ \begin{array}{c} -\text{Pro} \\ -\text{def} \\ +\text{cnt} \end{array} \end{array} \right], -T3, -T4$

mere
utter
certain

perfect

c $\left[\begin{array}{c} \left[\begin{array}{c} +\text{det} \\ -\text{dem} \end{array} \right] _ \begin{array}{c} -\text{Pro} \\ +\text{def} \\ +\text{cnt} \end{array} \end{array} \right], -T3, -T4$

very
only

16. [+det, +unique]

a $\left[+ _ \left[+\text{Pro} \right] \right]$

(1) $\left[+ _ \left[\begin{array}{c} +\text{sg} \\ +1\text{p} \end{array} \right] \right]$

I

(4) $\left[+ _ \left[\begin{array}{c} +\text{sg} \\ -\text{masc} \\ +3\text{p} \end{array} \right] \right]$

she

(2) $\left[+ _ \left[\begin{array}{c} +\text{sg} \\ -1\text{p} \end{array} \right] \right]$

you

$\left[\begin{array}{c} +\text{sg} \\ +\text{deg} \\ \{-\text{cnt}\} \\ \{-\text{An}\} \\ \{-\text{hum}\} \end{array} \right]$

it

(3) $\left[+ _ \left[\begin{array}{c} +\text{sg} \\ +\text{masc} \\ +3\text{p} \end{array} \right] \right]$

he

(6) $\left[+ _ \left\{ \begin{array}{c} \left[\begin{array}{c} -\text{sg} \\ +3\text{p} \end{array} \right] \\ \left[\begin{array}{c} -\text{sg} \\ +\text{def} \\ \{-\text{cnt}\} \\ \{-\text{An}\} \\ \{-\text{hum}\} \end{array} \right] \end{array} \right\} \right]$

they

b $[+ _ [{}^{+\text{Pro}}_{-\text{com}}]]$

\emptyset

17. $[+\text{det}, -\text{spec}]$

a $[+ _ [{}^{+\text{com}}_{+\text{cnt}}]]$

(1) $[+ _ [{}^{-\text{Pro}}_{+\text{sg}}_{+\text{def}}]]$

some
every
each

(2) $[+ _ [{}^{-\text{sg}}_{-\text{def}}]]$

any

(3) $[+ _ [{}^{-\text{sg}}_{-\text{def}}]]$

some

b $[+ _ [{}^{-\text{com}}_{-\text{def}}_{-\text{cnt}}]]$

some

18. $[+\text{det}, +\text{Dem}, + _ [{}^{-\text{Pro}}_{+\text{def}}]]$

a $[+ _ [{}^{+\text{com}}_{+\text{sg}}]]$

that
this

b $[+ _ [{}^{-\text{sg}}_{-\text{cnt}}]]$

those
these

19. $[+\text{det}, -\text{Dem}]$

a $[+ _ [{}^{+\text{Pro}}_{-\text{sg}}]]$

(1) $[+ _ [+1\text{p}]]$

we

(2) $[+ _ [-1\text{p}]]$

you

b [+ _ [-Pro]]

(1) [+ _ $\begin{bmatrix} +\text{sg} \\ -\text{def} \\ +\text{cnt} \end{bmatrix}$]
a

(2) [+ _ $\begin{bmatrix} +\text{com} \\ +\text{def} \end{bmatrix}$]
the

(3) [+ _ $\begin{bmatrix} -\text{sg} \\ -\text{def} \\ +\text{cnt} \end{bmatrix}$]
Ø

(4) [+ _ $\begin{bmatrix} -\text{def} \\ -\text{cnt} \end{bmatrix}$]
Ø

20. [+Prart]

a [+ _ ooo $\begin{bmatrix} -\text{sg} \\ +\text{def} \end{bmatrix}$]
both

b [+ _ ooo [-sg]]
all

c [+ _ ooo [+def]]
just

d only

2. TRANSFORMATIONAL COMPONENT

Index of Transformations

T1. Factive Nominal Optional

T2. Relativization

T3. Postdeterminer Adjectivalization Optional

T4. Prenominal Adjectivalization Optional

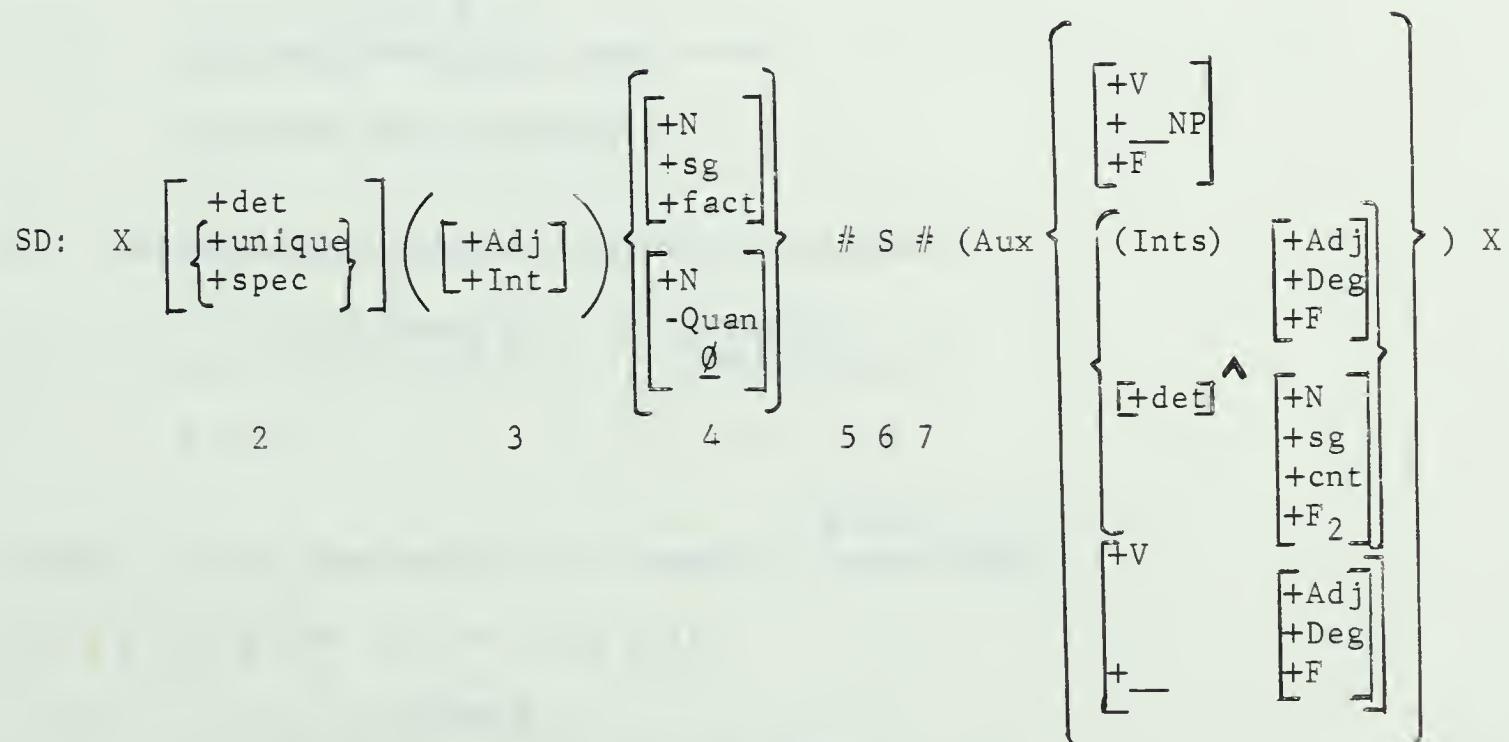
T5. Genitivization Optional

T6. Prenominal Genitive Determiner Optional

T7. Postnominal Determiner

T8. Postnominal Modifier Quantity-Mass

- T9. Postnominal Modifier Locative Optional
 - T10. Postnominal Modifier Pred-Phrase Optional
 - T11. Postnominal Modifier NP[▲] Pred-Phrase Optional
 - T12. Postnominal Modifier Appositive Reduction Optional
 - T13. WH Introduction
 - T14. WH Shift
 - T15. Reflexivization
 - T16. Demonstrative Pronominalization Optional
 - T17. Copula Insertion
 - T18. Block from the Deletion Rule
 - T19. Deletion of Plus Pronoun Matrices
- T1. Factive Nominal Optional



SC: 6 → that[^] 6; 5,7 → null

the very fact # the man came # (is) a tragedy ----→
the very fact that the man came is a tragedy

T2. Relativization

SD: X $\left[\begin{smallmatrix} +\text{det} \\ +F \end{smallmatrix} \right]$ $\left[+N \right]$ # X $\left[+\text{det} \right]$ $\left[+N \right]$ X # X
 2 3 4 5 6 7 8 9

Cond: (a) $2^3 = 6^7$, $Q \notin 5$, $+F = \left\{ \begin{smallmatrix} +\text{unique} \\ +\text{spec} \end{smallmatrix} \right\}$

SC: 6 → +App; 4,7,9, → null

Cond: b $2^3 = 6^7$, $Q \notin 5$, $+F = \infty$ spec

SC: 6 → +Rel; 4,7,9 → null

the man # the man went away # ----→

the man $\left[\begin{smallmatrix} +\text{det} \\ +\text{App} \end{smallmatrix} \right]$ went away ----→

the man, who went away,

T3. Postdeterminer Adjectivalization Optional

SD: X det X $\left[+N \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn $\left[\begin{smallmatrix} +\text{Adj} \\ \infty \text{Card} \end{smallmatrix} \right]$ Num X
 2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, $\left[\begin{smallmatrix} +\text{Adj} \\ \infty \text{Card} \end{smallmatrix} \right] \notin 3$

SC: 2 → 2^8 ; 5, 7-9 → null

the horses $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn five in number ----→
the five horses

T4. Prenominal Adjektivalization Optional

SD: X (Ints) X [+N] $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ (S) Tns (Ints) [+Adj] X
2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, if [-Num] \in 9
then [-Num] \notin 3

SC: 4 \longrightarrow $\overset{\wedge}{8} \overset{\wedge}{9} \overset{\wedge}{4}$; 5, 7-9 \longrightarrow null

a chair $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ Tn very tall \longrightarrow
a very tall chair

T5. Genitivization Optional

SD: X the X $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ (S) Tn of (Prart) [+det] X [+N] X
2 3 4 5 6 7 8 9 10 11

Cond: 2-4 are dominated by the same NP, 7-11 are dominated by Pos

SC: 9,11 \longrightarrow +Gen, 7 \longrightarrow null

the black hat $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ Tn of the man \longrightarrow
the black hat which (is) the man's

T6. Prenominal Genitive Determiner Optional

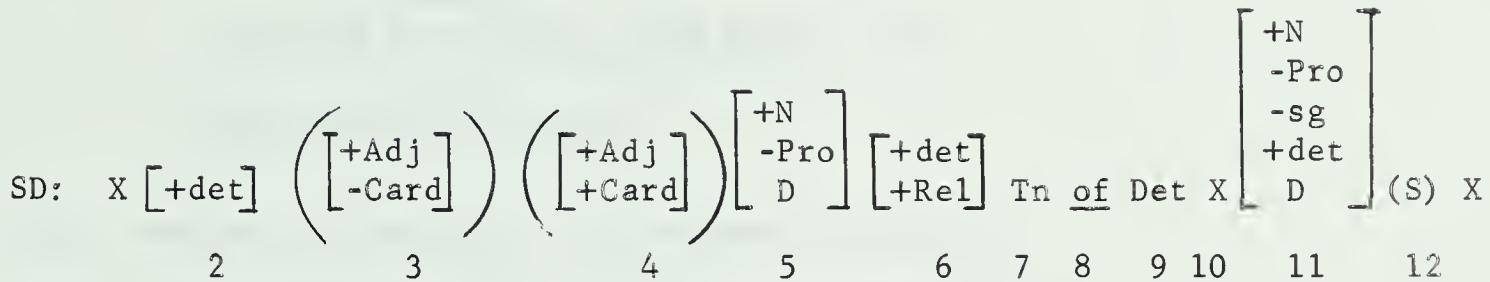
SD: X the X [+N] $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ (S) Tn Det X $\begin{bmatrix} +N \\ +\text{Gen} \end{bmatrix}$ X
2 3 4 5 6 7 8 9 10

Cond: 2-4, 8-10 are dominated by the same NP

SC: 2 \longrightarrow $\overset{\wedge}{2} 8-10$; 2,5,7-10 \longrightarrow null

the black hat $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ Tn $\begin{bmatrix} +\text{Gen} \\ \text{the} \end{bmatrix} \begin{bmatrix} +\text{Gen} \\ \text{man's} \end{bmatrix}$ \longrightarrow
the man's black hat

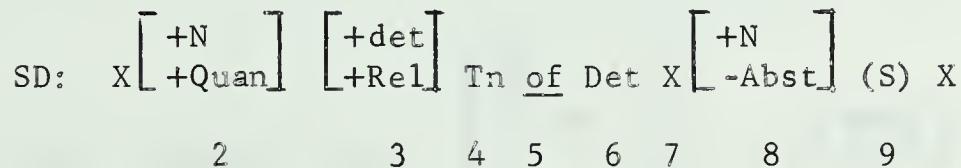
T7. Postnominal Determiner



SC: 5 \longrightarrow $+Pro$, 5 $\xrightarrow{\wedge}$ 5 8-12; 6 - 12 \longrightarrow null

each ship $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn of the ships \dashrightarrow
each $\left[\begin{smallmatrix} +\text{Pro} \\ \text{ship} \end{smallmatrix} \right]$ of the ships \dashrightarrow
each of the ships

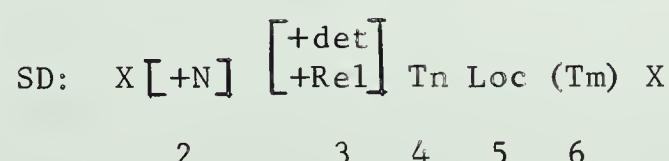
T8. Postnominal Modifier Quantity-Mass



SC: 2 \longrightarrow 2 5-9; 3-9 \longrightarrow null

a pail $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn of Ø water \dashrightarrow
a pail of water

T9. Postnominal Modifier Locative Optional



SC: 2 → $\hat{2} \hat{5} \hat{6}$; 3-6 → null

the bench $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn in the park ----→
the bench in the park

T10. Postnominal Modifier Pred-Phrase Optional

SD: X [+N] $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ Tn be ing VP X X
 2 3 4 5 6 7 8

Cond: $\left[\begin{smallmatrix} +V \\ +\text{Pred} \end{smallmatrix} \right] \notin [V, VP]$

SC: 2 → $\hat{2} \hat{6-8}$; 3-8 → null

the man $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ was walking away ----→
the man walking away

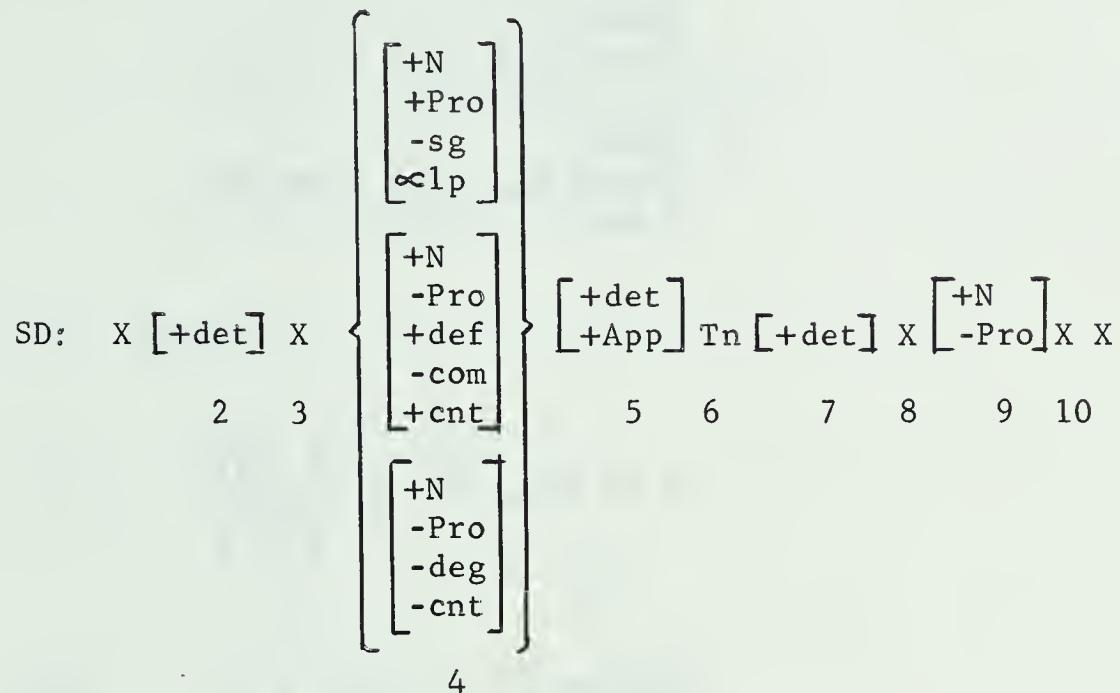
T11. Postnominal Modifier NP Pred-Phrase Optional

SD: X [+N] NP Aux ($\left\{ \begin{array}{l} \left[\begin{smallmatrix} +V \\ +\text{NP} \end{smallmatrix} \right] \\ \left[\begin{smallmatrix} +V \\ +\text{Prep} \end{smallmatrix} \right] \end{array} \right\}$) X $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ X X
 2 3 4 5 6 7 8

SC: 2 → $\hat{2} \hat{3-6} \hat{8}$; 3-8 → null

the book I Dick gave $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ to you Bill ----→
the book I gave to you

T12. Postnominal Modifier--Appositive Reduction Optional

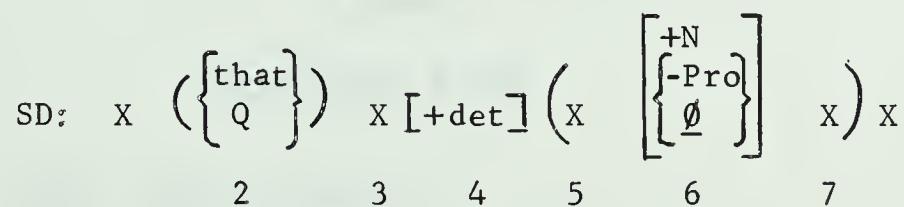


Cond: [-spec] $\not\in$ {2,7}; {2-4} {7-10} are dominated by the same NP

SC: 4 \longrightarrow 4[^], 7-10[^], ; 5-10 \longrightarrow null

we men [+det] [+App] Tn the committee ---->
we, the committee,

T13. WH Introduction



Cond: a if { [+Rel] } { [+App] } \Subset 4

SC: 4 \longrightarrow +wh

Cond: (b) 4-7 are dominated by the same NP, 2-7 are dominated by the same S, 2 \neq null, 3 \neq do

SC: 4 → +wh, 2 → null

the man I Dick saw $\begin{bmatrix} +\text{det} \\ +\text{Rel} \end{bmatrix}$ -----→
the man I Dick saw $\begin{bmatrix} +\text{det} \\ +\text{Rel} \\ +\text{wh} \end{bmatrix}$

T14. WH Shift

SD: X ($\begin{Bmatrix} \text{do} \\ \text{be} \\ \text{have} \\ M \end{Bmatrix}$) NP Aux X NP X
 3 4 5 6
 2

Cond: a if $2 \neq \text{null}$, if $[+\text{wh}] \in 3$

SC: 2 → $\overset{\wedge}{3}$ 2; 3 → null

Cond: b if $[+\text{wh}] \notin 3$, if $[+\text{wh}] \in 6$

SC: $\overset{\wedge}{2} \overset{\wedge}{3} \rightarrow \overset{\wedge}{6} \overset{\wedge}{2} \overset{\wedge}{3}$; 6 → null

the man I Dick saw $\begin{bmatrix} +\text{det} \\ +\text{Rel} \\ +\text{wh} \end{bmatrix}$ -----→
the man $\begin{bmatrix} +\text{det} \\ +\text{Rel} \\ +\text{wh} \end{bmatrix}$ I Dick saw -----→
the man who I saw

T15. Reflexivization

SD: X $[+\text{det}]$ X $\begin{bmatrix} +\text{N} \\ +\text{An} \end{bmatrix}$ X ($[+\text{V}]$) X $[+\text{det}]$ $[+\text{N}]$ X
 2 3 4 5 6 7 8 9

Cond: 2-9 are dominated by the same S, 2-4 are dominated by the same NP
 and $\in [N, S]$, 4 = 9, $\overset{\wedge}{8} 9$ are the only members of an NP which does
 not occur in a postnominal modifier and which $\in [VP, S]$

SC: 8 → +reflex, 9 → +Pro

I Dick hurt I Dick ----→
I Dick hurt [+Reflex] [+Pro] [Dick] ----→
I hurt myself

T16. Demonstrative Pronominalization Optional

SD: X [+det] [+Dem] [+N] X

2 3

Cond: [+An] $\not\in$ 3

SC: 3 → +Pro

this [-Pro] [pen] writes well ----→
this [+Pro] [pen] writes well ----→
this writes well

T17. Copula Insertion

SD: X Aux Pred X

2 3

SC: 3 → [+V]
 [...]
 [...]
 [be] ^ 3

the man Aux in the house ----→

the man Aux [+V]
 [...]
 [...]
 [be] in the house ----→
the man is in the house

T18. Block from the Deletion Rule

SD: X $\begin{bmatrix} +\text{det} \\ -\text{Dem} \end{bmatrix}$ $(\begin{bmatrix} +\text{Adj} \\ \infty \text{Card} \end{bmatrix}) (\begin{bmatrix} +\text{Adj} \\ B \text{Card} \end{bmatrix})$ X $\begin{bmatrix} +N \\ +\text{Pro} \end{bmatrix}$ X
2 3 4 5 6

Cond: (a) 2-6 are dominated by the same NP, $[+\text{Card}] \in 4$,
5 = null

SC: 6 \longrightarrow -Pro

Cond: b 2-6 are dominated by the same NP, elsewhere

SC: 6 \longrightarrow -Pro

you first five young $\begin{bmatrix} +\text{Pro} \\ \text{men} \end{bmatrix}$ \dashrightarrow
you first five young $\begin{bmatrix} -\text{Pro} \\ \text{men} \end{bmatrix}$ \dashrightarrow

T19. Deletion of Plus Pronoun Matrices

SD: X $\begin{bmatrix} +N \\ +\text{Pro} \end{bmatrix}$ X
2

SC: 2 \longrightarrow null

I $\begin{bmatrix} +\text{Pro} \\ \text{Dick} \end{bmatrix}$ went to town \dashrightarrow
I went to town

APPENDIX B. A GRAMMAR OF THE RUSSIAN NOUN PHRASE

1. BASE COMPONENT

Given: # S #

Branching Rules

1. $S \longrightarrow (Q) \overset{\wedge}{NP} \text{Pred-Phrase}$
2. $\text{Pred-Phrase} \longrightarrow \overset{\wedge}{\text{Aux}} VP (\text{Loc}) (\text{Tm})$
3. $VP \longrightarrow \begin{cases} \overset{\wedge}{\text{Pred}} \\ V \left\{ \begin{array}{l} (\text{NP}) (\text{Dat}) (\text{Dir}) (\text{Dur}) (\text{Agent}) (\text{Freq}) \dots (\text{Man}) \\ \overset{\wedge}{\text{Pred}} \end{array} \right\} \end{cases}$
4. $\text{Pred} \longrightarrow \begin{cases} \overset{\wedge}{\text{NP}} \\ \overset{\wedge}{\text{Loc}} \\ \overset{\wedge}{\text{Pos}} \\ \left(\begin{cases} \overset{\wedge}{\text{Ints}} \\ \overset{\wedge}{\text{Num}} \end{cases} \right) \overset{\wedge}{\text{Adj}} \end{cases}$
5. $X \longrightarrow \overset{\wedge}{\text{Prep}} NP$ where $X = \left\{ \begin{array}{l} \overset{\wedge}{\text{Loc}}, \overset{\wedge}{\text{Tm}}, \overset{\wedge}{\text{Dat}}, \overset{\wedge}{\text{Dur}}, \overset{\wedge}{\text{Dir}} \\ \overset{\wedge}{\text{Agent}}, \overset{\wedge}{\text{Freq}}, \overset{\wedge}{\text{Man}}, \overset{\wedge}{\text{Pos}}, \overset{\wedge}{\text{Num}} \end{array} \right\}$
6. $\text{Aux} \longrightarrow Tn (M) \text{ Aspect}$
7. $Tn \longrightarrow \left\{ \begin{array}{l} \overset{\wedge}{\text{Pres}} \\ \overset{\wedge}{\text{Past}} \end{array} \right\}$
8. $\text{Aspect} \longrightarrow \left\{ \begin{array}{l} \overset{\wedge}{\text{Imp}} \\ \overset{\wedge}{\text{Per}} \end{array} \right\}$
9. $NP \longrightarrow \overset{\wedge}{\text{Det}} N (\# S \#)$
10. $\text{Det} \longrightarrow (\text{Prart}) \overset{\wedge}{\text{det}} (\text{Adj})$
11. $X \longrightarrow CS$ where $X = \{V, \overset{\wedge}{\text{Adj}}, \overset{\wedge}{\text{N}}, \overset{\wedge}{\text{det}}, \overset{\wedge}{\text{Prart}}, \overset{\wedge}{\text{Ints}}\}$

Subcategorization Rules

12. $[+N] \longrightarrow \begin{bmatrix} +\text{Pro} \\ -\text{Com} \end{bmatrix}$

13. $[+Com] \longrightarrow \begin{bmatrix} +sg \\ \pm cnt \end{bmatrix}$
14. $[+sg] \longrightarrow [\pm masc]$
15. $[-masc] \longrightarrow [\pm fem]$
16. $\begin{cases} [+cnt] \\ [-Com] \end{cases} \longrightarrow [\pm An]$
17. $[+An] \longrightarrow [\pm hum]$
18. $\begin{bmatrix} +hum \\ +Pro \end{bmatrix} \longrightarrow [\pm 3p]$
19. $[-3p] \longrightarrow [\pm 1p]$
20. $\begin{bmatrix} -An \\ +cnt \end{bmatrix} \longrightarrow [+Quan]$
21. $[-cnt] \longrightarrow \begin{cases} [+Abst] / [+sg] \\ [-Abst] / elsewhere \end{cases}$
22. $[+Adj] \longrightarrow \begin{cases} [+Int] / _N \\ [-Int] / elsewhere \end{cases}$
23. $[-Int] \longrightarrow \begin{cases} [+Num] / Num_ \\ [-Num] / elsewhere \end{cases}$
24. $[+Num] \longrightarrow [+Card]$
25. $[+Card] \longrightarrow [\pm Coll]$
26. $[-Num] \longrightarrow \begin{cases} [+Deg] / (Ints) _ \\ [-Deg] / elsewhere \end{cases}$
27. $[+det] \longrightarrow [\pm unique]$
28. $[-unique] \longrightarrow [\pm spec]$
29. $[-spec] \longrightarrow [\pm def]$
30. $[+spec] \longrightarrow [\pm Dem]$

Selectional Rules

31. $\left\{ \begin{array}{l} [+Prart] \\ [+Int] \end{array} \right\} \longrightarrow CS / (_) [\infty] (_) [\alpha] \text{ where } \infty = +det$
 $\alpha = +N$
32. $[+Num] \longrightarrow CS / [\infty] ooo __ \text{ where } \infty = +N$
33. $[+detI] \longrightarrow __ ooo [\infty] \text{ where } \infty = +N$

Sample Lexicon

1. $[+N, +Pro, +sg, -Fem, +3p]$

a ø

2. $[+N, -Com, +hum]$

a $[+masc]$

(1) $[+sg, +\emptyset CL]$

ivan (ivanovic) (romanov)
andrej (petrovic) (ivanov)
pjotr () ()

(2) $[+sg, +CL]$

vanja
paša
sasa

b $[+Fem, +sg, +1CL]$

larisa (fedorovna) (antipova)
liza (merkuriva) (meškova)

vera () ()

3. $[+N, -Com, -hum]$

a $[+masc, +sg]$

(1) $[+\emptyset CL]$

obrek
tolkan
sarik

b $[+Fem, +sg]$

(1) $[+1CL]$

žucka
tovornjaška
kaštanka

(2) $[-decl]$

mumu
voronko
serko

4. $[+N, -Com, -An]$

a $[+masc, +sg, +\emptyset CL]$

(1) leningrad
saratov
london

b $[+Fem, +sg, +1CL]$

kanada
francija
rossija

c $[-Fem, +sg, -1CL]$

kuncevo
ivanova
kemerovo

d $[+masc, +sg, -decl]$

baku
tbilisi
soči

e [-sg, +ØCL]

soedinjonye staty ameriki

5. [+N, +cnt, +hum]

a [+masc]

(1) [+ØCL]

brat
muz
korol'
otec
mal'čik

(2) [+1CL]

pjanica
muzčina
junoša
voevoda
deduska

(3) [-ØCL]

družišče
masterišče
podmaster'e

b [+Fem]

(1) [+1CL]

sestra
devuška
zena
učenica
staruxa

(2) [-1CL]

mat'
doc'

(3) [-dec1]

ledi
madam

c $\left[\begin{array}{l} \{\text{+masc}\} \\ \{\text{+Fem}\} \end{array} \right]$

(1) [+ØCL]

sekretar'
vrac
doktor
krestjanin
celovek [+sg]

(2) [+2CL]

sirota
umnica
kniganosa
tupica

d [-sg]

deti
roditeli
ljudi

6. [+N, +cnt, -hum]

a [+masc, +ØCL]

byk
pjos
volk
lev

b $\left[\begin{array}{l} \{\text{+masc}\} \\ \{\text{+Fem}\} \end{array} \right]$

(1) [+ØCL]
žuravl'
golub'
kon'
gus'

(2) [+1CL]
belka
zmeja
lisa
galka

(3) [-1CL]
losad'
mis'

(4) [-decl]

kingaru
kakadu
simpanze
boa

c [+Fem, +1CL]

indjuška
kurica
slonixa
medvedica

d [-Fem, -ØCL]

čudovisče
strasilisce
čubišče

7. [+N, -Quan]

a [+masc, +ØCL]

molotok
stol'
den'
rubl'
fakt [+fact]
znak [+fact]

b [+Fem]

(1) [+1CL]
kniga
strana
nedelja
stat'ja
rabota

(2) [-1CL]

dver'
vešč'
nit'
noc'
misli' [+fact]

c [-Fem]

(1) [-ØCL]

okno
pole
zdanie
imja
slово [+fact]
zaključenie

(2) [-decl]

pal'to
metro
kino
depo

8. [+N, +Quan]

a [+masc, +ØCL]

funt
paket
kusok
mešok

b [+Fem, +1CL]

mera
jedinica
para
pačka

c [-Fem, -ØCL]

stado
vedro
množestvo
količestvo [+sg, +Num]

9. [+N, -Abst]

a [+masc]

(1) [+ØCL, +sg]

sokolad
mjod
saxar
tabat
čaj

b [+Fem, +sg]

(2) [-decl, +sg]

krov'

professura
voda
pšenica
teljatina

krov'
neft'
stal'
roz'

c [-Fem]

(1) [-ØCL, +sg]

krestjanstvo
beljo
železo
zoloto
moloko

(2) [-sg]

drova
černila

d [-sg]

brjuki
kavicki
časy
sci
ocki

10. [+N, +Abst]

a [+Fem]

(1) [+1CL]

tisina
bessonica
slava
toska

(2) [-1CL]

ljubov'
pamjat'
dal'
blizost'
mosc'

b [-Fem, -ØCL]

zlo
gore
sosedstvo
zdrorov'e
blago

11. [+Ints]

a očen'
dovol'no
sliškom

12. [+Adj, +Int]

a [+ [+spec] ____ [+cnt], -T3, -T4]

samyj

13. [+Adj, +Coll]

a [- - [{ [+cnt]
[-sg]
[-cnt]
[∞sg] }]]

mnogo
nemalo
malo
nemnogo

b [+ ____ [+cnt] [-sg]]]

neskol'ko

c [+ ____ [+cnt] [-sg]]]

dvoe
troe
pjatero

14. [+Adj, -Coll]

a [+ __ [+cnt]
[+sg]]]

odin

b [+ __ [+cnt]
[+sg]] , +Plagr] c [+ __ [+cnt]
[-sg]]]

dva
tri
cetyre

pjat'
sest'
sto

15. [+Adj, -Card]

a [+ [+cnt] ooo__]

pervyj
vtoroj
pjatyj
dvenacatyj

16. [+Adj, +Deg]

a [(+short)]

bednyj
tażkij
dobryj
xorošij
jasnyj [+F1]
stranyj [+F1]

b [-short]

tolstućij
prebogatyj
ranij

c [+short]

rad
dolżen
nadoben

17. [+Adj, -Deg]

a stal'noj
saxarnyj
belyj
zolotoj
derevjanneyj

18. [+det, +unique, +__ [+Pro]]

a (1) [+ __ [(+3P)]]

on

(2) [+ __ [+sg]
[+1p]]]

ja

(3) [+ __ [+sg]
[-1p]]]

ty

(4) [+ __ [-sg]
[+1p]]]

my

(5) [+ __ [-sg]
[-1p]]]

vy

19. [+det, +def]

a (1) [+__ $\begin{bmatrix} +\text{cnt} \\ +\text{sg} \end{bmatrix}$]
kazdyj

(2) [+__ $\begin{bmatrix} +\text{cnt} \\ +\text{sg} \end{bmatrix}$] (3) [+__ [+cnt]]
vsjakij
drugoj
nekotoryj

20. [+det, -def, +__ [+Pro]]

a kt

21. [+det, +Dem]

a [+__ooo $\begin{bmatrix} +\text{cnt} \\ -\text{fact} \end{bmatrix}$]
etot

b [+__ooo [+cnt]]
tot

22. [+det, -Dem, +__ooo [-Pro]]

Ø

23. [+Prart]

a [+__ [+spec] [+Com]] b tol'ko
ves'

2. TRANSFORMATIONAL COMPONENT

Index of Transformations

T1. Factive Nominal Optional

T2. Relativization

T3. Postdeterminer Adjectivalization Optional

T4. Prenominal Adjectivalization Optional

T5. Prenominal Possessive Determiner Optional

T6. Postnominal Modifier Genitive Optional

T7. Postnominal Modifier Genitive

T8. Postnominal Modifier Locative, Possessive Optional

- T9. Postnominal Modifier Appositive Optional
 - T10. Postnominal Modifier Pred-Phrase Optional
 - T11. Kt Introduction
 - T12. Kt Shift
 - T13. Reflexivization
 - T14. Copula Insertion
 - T15. Deletion of Plus Pronoun Matrices

T1. Factive Nominal Optional

SD: X $\left[\begin{array}{l} [+det] \\ [+spec] \end{array} \right]$ $\left(\begin{array}{l} [+Adj] \\ [+Int] \end{array} \right)$

2	3	4	5	6	7	8	
						$\left\{ \begin{array}{l} [+V] \\ [+ \underline{-} NP] \\ [+F_1] \end{array} \right\}$	
$\left\{ \begin{array}{l} \left[\begin{array}{l} [+N] \\ [-Pro] \\ [-sg] \\ [+fact] \end{array} \right] \\ \left[\begin{array}{l} [+N] \\ [+Pro] \\ [+fact] \\ \emptyset \end{array} \right] \end{array} \right\}$			$\# \quad S \quad \# \quad (\text{Aux})$				

Cond: Q \notin 6, \emptyset in 4 may only occur with [+Dem] in 2

SC: 6 → sto^6 ; 5,7 → null

on ivan skazal to Ø # Ø starik umer # ----->
on ivan skazal što Ø starik umer

T2. Relativization

SD: $x \left[\begin{smallmatrix} +\text{det} \\ -\text{unique} \end{smallmatrix} \right] [+N] \# x [+ \text{det}] [+N] x \# x$

2 3 4 5 6 7 8 9

Cond: $2^3 = 6^7$, if [to] $\in 2$ and [+Pro] $\in 3$, or if [-Pro] $\in 3$,

$Q \notin 5$

SC: 6 \longrightarrow +Rel; 4,7,9 \longrightarrow null

$\emptyset \underline{\text{čelovek}} \# \emptyset \underline{\text{čelovek}} \underline{\text{ubil}} \emptyset \underline{\text{zmeju}} \# \longrightarrow$

$\emptyset \underline{\text{čelovek}}, \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \underline{\text{ubil}} \emptyset \underline{\text{zmeju}}, \longrightarrow$

$\emptyset \underline{\text{čelovek}}, \underline{\text{kotorjy}} \underline{\text{ubil}} \emptyset \underline{\text{zmeju}},$

T3. Postdeterminer Adjectivalization Optional

SD: X det X [+N] $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn Num $\left[\begin{smallmatrix} +\text{Adj} \\ \infty \text{Card} \end{smallmatrix} \right]$ X

2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, [∞ Card] $\notin 3$

SC: $2^3 \longrightarrow 2^9^3$; 5,7-9 \longrightarrow null

$\emptyset \underline{\text{lošadi}}, \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \underline{\text{v količestve}} \underline{\text{pjat'}}$, \longrightarrow

$\emptyset \underline{\text{pjat'}} \underline{\text{lošadej}}$

T4. Prenominal Adjectivalization Optional

SD: X Det X $\left[\begin{smallmatrix} +\text{N} \\ -\text{Pro} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Aux (Ints) $\left[\begin{smallmatrix} +\text{Adj} \\ -\text{Num} \end{smallmatrix} \right]$ X

2 3 4 5 6 7 8 9

Cond: 2-4 are dominated by the same NP, [-Deg] $\notin 3$

SC: 4 \longrightarrow 8^9^4 ; 5,7-9 \longrightarrow null

$\underline{\text{etot}} \underline{\text{mužčina}} \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \underline{\text{očen'}} \underline{\text{sil'nyj}}$ \longrightarrow

$\underline{\text{etot}} \underline{\text{očen'}} \underline{\text{sil'nyj}} \underline{\text{mužčina}}$

T5. Prenominal Possessive Determiner Optional

SD: X $\left[\begin{smallmatrix} +\text{det} \\ -\text{Dem} \end{smallmatrix} \right]$ X $\left[\begin{smallmatrix} +\text{N} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn u $\left[\begin{smallmatrix} +\text{det} \\ \{+\text{unique}\} \\ -\text{Dem} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{N} \\ +\text{An} \end{smallmatrix} \right]$ X
 2 3 4 5 6 7 8 9 10

Cond: 2-4 are dominated by the same NP, 8 is dominated by Pos

SC: 9,10 \longrightarrow +Pos, 2 \longrightarrow $\overset{\wedge}{2}$ $\overset{\wedge}{9}$ 10; 5,7-10 \longrightarrow null

Ø pero $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ u ja ivan \dashrightarrow
Ø $\left[\begin{smallmatrix} +\text{Pos} \\ \underline{\text{ja}} \end{smallmatrix} \right]$ $\left[\begin{smallmatrix} +\text{Pro} \\ \underline{\text{ivan}} \end{smallmatrix} \right]$ pero \dashrightarrow
mojo pero

T6. Postnominal Modifier Genitive Optional

SD: X Det X $\left[\begin{smallmatrix} +\text{N} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn u $\left[\begin{smallmatrix} +\text{det} \\ -\text{Pro} \end{smallmatrix} \right]$ X $\left[\begin{smallmatrix} +\text{N} \\ -\text{Pro} \end{smallmatrix} \right]$ X
 2 3 4 5 6 7 8 9 10 11

Cond: [+Pos] $\not\equiv$ 2, 8-11 are dominated by Pos

SC: 9 \longrightarrow +Gen, 4 \longrightarrow $\overset{\wedge}{4}$ 9-11; 5,7-11 \longrightarrow null

každaja kniga $\left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right]$ u Ø ivan \dashrightarrow
každaja kniga $\left[\begin{smallmatrix} +\text{Gen} \\ \underline{\emptyset} \end{smallmatrix} \right]$ ivan \dashrightarrow
kažadaja kniga Ø ivana

T7. Postnominal Modifier Genitive

SD: X $\left[\begin{smallmatrix} +\text{N} \\ +\text{Rel} \end{smallmatrix} \right]$ (S) Tn u $\left[\begin{smallmatrix} +\text{det} \\ -\text{Pro} \end{smallmatrix} \right]$ X
 2 3 4 5 6 7 8 9

Cond: 6-9 are dominated by Pos, [+An] $\not\equiv$ 9

SC: 7 \longrightarrow +Gen, 2 \longrightarrow $\overset{\wedge}{2}$ 7-9; 3,5-9 \longrightarrow null

$\emptyset \text{ stakan} \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \text{ u } \emptyset \text{ xoróšego vina} \longrightarrow$
 $\emptyset \text{ stakan } \emptyset \text{ xoróšego vina}$

T8. Postnominal Modifier Locative, Possessive Optional

SD: $X [+N] \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] (S) Tn \left\{ \begin{smallmatrix} \text{Loc} \\ \text{Pos} \end{smallmatrix} \right\} X$
2 3 4 5 6

SC: $2 \longrightarrow 2^{\wedge} 6; 3, 5, 6 \longrightarrow \text{null}$

$\emptyset \text{ stol} \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] v \emptyset \text{ komnate} \longrightarrow$
 $\emptyset \text{ stol } v \emptyset \text{ komnate}$

T9. Postnominal Modifier Appositive Optional

SC: $X [+N] \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] (S) Tn NP X$
2 3 4 5 6

SC: $2 \longrightarrow 2^{\wedge} * 6^{\wedge} *; 3, 5, 6 \longrightarrow \text{null}$

$\text{etot } \check{\text{c}}\text{elovek} \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \left[\begin{smallmatrix} +\text{Pos} \\ \text{mi} \end{smallmatrix} \right] \text{ rabotniki direktor} \longrightarrow$
 $\text{etot } \check{\text{c}}\text{elovek} * \left[\begin{smallmatrix} +\text{Pos} \\ \text{mi} \end{smallmatrix} \right] \text{ rabotniki direktor*} \longrightarrow$
 $\text{etot } \check{\text{c}}\text{elovek} * \text{nas}^{\vee} \text{ direktor} *$

T10. Postnominal Modifier Pred-Phrase Optional

SD: $X [+N] \left[\begin{smallmatrix} +\text{det} \\ +\text{Rel} \end{smallmatrix} \right] \left\{ \begin{array}{ll} \text{Pres} & \text{Imp} \\ \text{Past} & \text{Aspect} \end{array} \right\} [+V] X X$
2 3 4 5 6 7

SC: $6 \longrightarrow +\text{Adj}, 2 \longrightarrow 2^{\wedge} 4-7; 3-7 \longrightarrow \text{null}$

$\text{eta doroga, kotoraja vedjot v } \emptyset \text{ moskvu,} \longrightarrow$
 $\text{eta doroga, vedusčaja v } \emptyset \text{ moskvu,}$

T11. Kt Introduction

SD: X ($\begin{cases} \text{sto} \\ Q \end{cases}$) X [+det] (X $\left[\begin{array}{c} +N \\ [-\text{Pro}] \\ [+cnt] \\ \emptyset \end{array} \right]$) X) X
 2 3 4 5 6 7

Cond: a if [+Rel] ≤ 4

SC: 4 \longrightarrow +kt

Cond: b 4-7 are dominated by the same NP, 2 \neq null

SC: 4 \longrightarrow +kt; 2 \longrightarrow null

$\emptyset \underline{\text{celovek}}, \left[\begin{array}{c} +\text{det} \\ +\text{Rel} \end{array} \right] \underline{\text{prisol}}, \longrightarrow$
 $\emptyset \underline{\text{celovek}}, \left[\begin{array}{c} +\text{det} \\ +\text{Rel} \\ +\text{kt} \end{array} \right] \underline{\text{prisol}}, \longrightarrow$
 $\emptyset \underline{\text{celovek}}, \underline{\text{kotoryj}} \underline{\text{prisol}},$
 $\dots \underline{\text{znaet}}, \underline{\text{sto}} \underline{\text{ono}} \left[\begin{array}{c} +\text{hum} \\ \emptyset \end{array} \right] \underline{\text{sdelal}} \emptyset \underline{\text{znak}}, \longrightarrow$
 $\dots \underline{\text{znaet}}, \underline{\text{sto}} \left[\begin{array}{c} +\text{kt} \\ \underline{\text{ono}} \end{array} \right] \emptyset \underline{\text{sdelal}} \emptyset \underline{\text{znak}}, \longrightarrow$
 $\dots \underline{\text{znaet}}, \underline{\text{kto}} \underline{\text{sdelal}} \emptyset \underline{\text{znak}}$

T12. Kt Shift

SD: X NP Aux X (Prep) $\left[\begin{array}{c} +\text{det} \\ +\text{kt} \end{array} \right]$ X X
 2 3 4 5 6 7

Cond: [+kt] $\not\in$ 2; 6,7 are dominated by the same NP, 2-7 are dominated by the same S

SC: 2 \longrightarrow 5-7²; 5-7 \longrightarrow null

$\emptyset \underline{\text{celovek}} \underline{\text{znal}}, \underline{\text{on}} \underline{\text{ivan}} \underline{\text{sdelal}} \left[\begin{array}{c} +\text{det} \\ +\text{kt} \end{array} \right] \left[\begin{array}{c} -\text{An} \\ \emptyset \end{array} \right], \longrightarrow$

$\emptyset \check{c}elovek znal, \left[\begin{smallmatrix} +det \\ +kt \end{smallmatrix} \right] \left[\begin{smallmatrix} -An \\ \emptyset \end{smallmatrix} \right] on ivan sdelal, \longrightarrow$
 $\emptyset \check{c}elovek znal, sto on sdelal,$

T13. Reflexivization

SD: X [+det] X $\left[\begin{smallmatrix} +N \\ +An \end{smallmatrix} \right]$ X (+V) X [+det] [+N] X
2 3 4 5 6 7 8 9

Cond: 2-9 are dominated by the same S, 2-4 are dominated by the same NP and $\in [N, S]$, 4 = 9, 8⁹ are the only members of an NP which does not occur in a prenominal or postnominal modifier.

SC: 8 \longrightarrow +Reflex, 9 \longrightarrow +Pro

ja ivan kupil \emptyset bilet d1ja ja ivan \longrightarrow
ja ivan kupil \emptyset bilet d1ja $\left[\begin{smallmatrix} +Reflex \\ ja \end{smallmatrix} \right] \left[\begin{smallmatrix} +Pro \\ ivan \end{smallmatrix} \right] \longrightarrow$
ja kupil \emptyset bilet d1ja sebja

T14. Copula Insertion

SD: X Past Aspect Pred X

2 3 4

SC: 4 \longrightarrow $\left[\begin{smallmatrix} +V \\ \dots \\ \dots \\ by \end{smallmatrix} \right] \wedge 4$

oni brat'ja Past Aspect v \emptyset komnate \longrightarrow
oni brat'ja byli v \emptyset komnate \longrightarrow
oni byli v \emptyset komnate

T15. Deletion of Plus Pronoun Matrices

SD: X $\begin{bmatrix} +N \\ +Pro \end{bmatrix}$ X

2

SC: 2 \longrightarrow null

on $\begin{bmatrix} +Pro \\ \underline{\text{devuska}} \end{bmatrix}$ 1jubil on $\begin{bmatrix} +Pro \\ \underline{\text{pavel}} \end{bmatrix}$ \longrightarrow
ona 1jubila ego

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